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PROGRAM IN GLOBAL SURGERY AND SOCIAL CHANGE
Harvard Medical School

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PROGRAM IN GLOBAL SURGERY AND SOCIAL CHANGE

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Abbreviations

CEA	Cost–effectiveness analysis
CEmONC	Comprehensive emergency maternal, obstetric and neonatal care
DALY	Disability-adjusted life year
DCP-3	Disease Control Priorities, third edition
DHS	Demographic and Health Survey
GDP	Gross domestic product
HAT	Hospital Assessment Tool
HHFA	Harmonized Health Facilities Assessment
HIS	Health information system
HMIS	Health sector management and information system
HPMI	Hospital performance monitoring and improvement
KPI	Key performance indicator
LCoGS	Lancet Commission on Global Surgery
LMIC	Low- and middle-income country
M&E	Monitoring and evaluation
MoF	Ministry of finance
MoH	Ministry of health
MST	Multidisciplinary surgical team
MTEF	Medium-term expenditure framework
NCD	Noncommunicable disease
NGO	Nongovernmental organization
NHSP	National health strategic plan
NSOAP	National Surgical, Obstetric and Anaesthesia Plan
OR	Operating room
PFM	Public financial management
RACS	Royal Australasian College of Surgeons
RHB	Regional health bureau
RMNCH	Reproductive, maternal, newborn and child health
SaLTS	Saving Lives Through Safe Surgery
SAT	Surgical Assessment Tool
SDG	Sustainable Development Goal
SOA	Surgical, obstetric and anaesthesia
SWOT	Strengths, weaknesses, opportunities and threats
TWG	Technical working group
UHC	Universal health coverage
UN	United Nations
WDI	World Development Indicator
WHO	World Health Organization

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Forewords

NIKHIL SETH

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I am honored to support the publication of this important manual that will guide the process of countries developing their own surgical, obstetric and anaesthesia plans. During the final preparations for its publishing, the world was plunged into the chaos and uncertainty of the COVID-19 pandemic. Through this pandemic, the world has clearly seen that even the strongest healthcare systems in high income countries have been severely challenged and pushed beyond their capacity. How much more will countries with marginal health services struggle under the strain of dealing with pandemics?

Strong and resilient healthcare systems are essential for countries to maintain healthy populations and economic stability during times of uncertainty. The importance of Universal Health Coverage (UHC) and other important health related objectives outlined in the UN Sustainable Development Goals (SDGs) are now, more than ever before, being clearly recognized as preeminent tools for maintaining world stability. More specifically, it has been shown that surgical, obstetric and anaesthesia care is the cornerstone for ensuring strong, resilient and sustainable healthcare systems. Despite this reality, over 5 billion people and more than 90% of the world's poor lack access to basic surgical care.

The world has made a commitment to achieving the SDGs by 2030. The provision of safe and affordable surgical care is inextricably linked to many of these goals and is a key factor in their successful achievement. In particular, goals touched by surgical care provision include: SDG 1 - ending poverty; SDG 3 - ensuring good health for all; SDG 5 - achieving gender equality; SDG 8 - promoting economic growth; SDG 9 - building resilient infrastructure and fostering innovation SDG 10 - reducing inequalities in and among countries; SDG 16 - promoting inclusive societies and effective and accountable institutions, and SDG 17 - strengthening partnerships. In particular, successfully achieving the majority of the SDG 3 components is closely linked to each country's ability to increase access to surgical care, especially for the poor and marginalized.

Unfortunately, surgical care has largely been absent from the global health dialogue despite playing an indispensable role in achieving the SDGs and Universal Health Coverage. The ramifications are profound: the lost economic output due to poor access to safe and affordable surgical care will cost low- and middle-income countries (LMICs) an estimated $12.3 trillion USD by the year 2030 unless access to surgical, obstetric and anesthesia care is improved. While significant investment will be required to change this economic and human tragedy, we know that great progress can be made in global health.

We need only to look at the impressive achievements the world had made over the last decade in several areas. Through the coordinated efforts of stakeholders around the world, the maternal mortality rate has decreased by 38% since the year 2000. During the same time period, infant mortality has also been reduced by 44%. However, we will not finish the last mile for both maternal and child health until access to safe surgical, obstetric and anaesthesia care is strengthened.

We at UNITAR, along with all the contributors, are pleased to publish the NSOAP Manual with its goal to help countries increase their capacity to deliver safe and affordable emergency and essential surgical, obstetric and anaesthesia services. We feel that – with the adequate support – this publication can become a key resource in assisting countries integrate surgery, obstetric and anesthesia care delivery into their national health strategies.

If the COVID-19 pandemic has taught us anything, it is that investments in strong and resilient health systems are a necessity. Without that, no country can be prepared for the next health crisis. In the 2030 Agenda for Sustainable Development, the Governments of this world pledged to endeavour to reach the furthest behind first. It is these very countries that need assistance in upscaling surgical services the most, as the cornerstone for building strong, resilient and sustainable healthcare systems.

I invite all of you reading these words to set your mind on the targets in front of us, to be optimistic, and to use this publication as a tool to support your important work.

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https://tinyurl.com/yaj6belf

https://tinyurl.com/yajblgul

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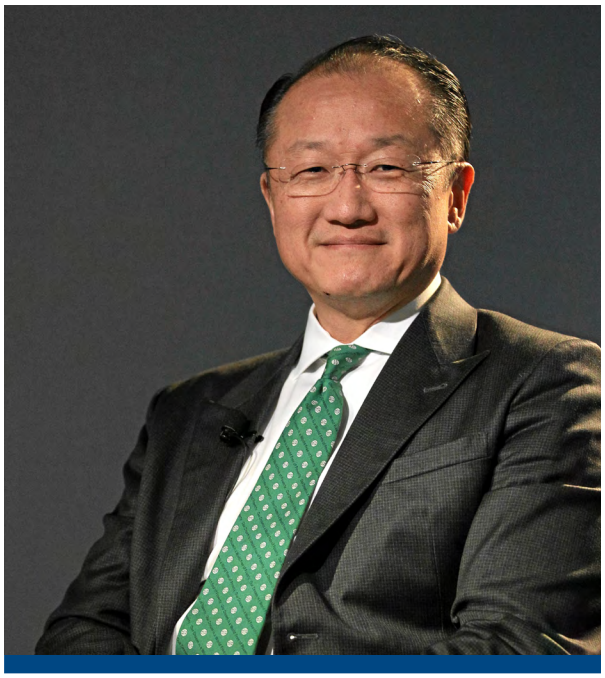

JIM YONG KIM

12th President of the World Bank

In my opening address for the Lancet Commission on Global Surgery (LCoGS) in January 2014 I reminded the commissioners that "surgery is an indivisible, indispensable part of health care" and challenged them to create a commission report that not only called out the challenges and shortcomings of global surgery at the time, but more importantly set forth a vision for a future in which surgical care was an integral component of universal health coverage (UHC). This challenge was bolstered by the WHO in May of 2015 when the World Health Assembly resolution 68.15 was passed calling for emergency and essential surgery's inclusion in UHC. Both the LCoGS and the WHA Resolution 68.15 called for member states to include surgical care in national health planning initiatives and in the last 5 years the global surgery community has taken this call to action seriously. This National Surgical, Obstetric and Anesthesia Planning Manual published by UNITAR provides a thorough, yet flexible framework for member states to use in their national planning efforts that allows for contextual, cultural, economic and demographic realities to guide priority setting. This Manual is an important adjunct for the global health development community and member states alike in working towards UHC.

Development and health system strengthening are not where this manual or global surgery's utility ends. The recent COVID crisis has focused our attention acutely on pandemic preparedness and health security. To many people, global health development and global health security are "Venn diagrams" that are seemingly separate, with separate funding streams and separate communities of interest, but in reality - or in an ideal reality - nothing should be further from the truth. Strong health systems, health equity, and health security are interlinked and co-dependent. In my April 2020 article in the New Yorker - "It's not too late to go on the offensive against the coronavirus" - I called out five elements in the battle against this foe. The first four, social distancing, contact tracing and isolation, are the first line in the battle against all infectious pandemics. The fifth - treatment - does not belong exclusively to pandemics. Treatment calls upon a surgical ecosystem that includes care providers, operating rooms, anesthesia machines, consumables and medications; all of which require strong health systems BEFORE a pandemic strikes.

Investing in surgical capacity strengthens health systems by ensuring timely, affordable, and safe surgical and anesthesia care; it is truly foundational for the delivery of health care under ordinary circumstances. And, as we saw in New York City and beyond, existing surgical capacity also played a pivotal role in extraordinary circumstances, as it was readily repurposed to rapidly expand Covid-19 treatment capacity. In my opinion, there has never been a more critical time to reimagine and rebuild surgical systems to deliver on a promise of universal health coverage, health equity and health security.

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CHAPTER 1

Introduction/ Preface

Clinical conditions requiring surgical, obstetric and anaesthesia (SOA) services amount to 30% of the global disease burden, yet over 70% of the world's population cannot access safe, timely and affordable SOA care when they need it (1). In many corners of the globe, in the words of Paul Farmer and Jim Kim, surgery has remained the "neglected stepchild of global health" (2). Nevertheless, the year 2015 was a landmark year for global surgery, drawing international attention to the scope and seriousness of the surgical disease burden.

Two seminal publications were released in 2015 that describe specific interventions essential for the advancement of surgery in low- and middle-income countries (LMICs). Volume 1 of the nine-volume series Disease Control Priorities, 3rd Edition (DCP-3) focuses on essential surgical care (3) and identifies 44 surgical procedures that address substantial needs as well as being cost-effective and feasible to implement in LMICs. The same year, the Lancet Commission on Global Surgery (LCoGS) released Global Surgery 2030: Evidence and Solutions for Achieving Health, Welfare, and Economic Development (1), which provides an overview of the state of surgical care in LMICs and sets a framework of recommendations, indicators and targets to promote universal access to safe and affordable surgical and anaesthesia care. The unanimous passage of the World Health Assembly resolution WHA68.15 – on strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage (UHC) – in 2015 (4) provided the political mandate to accomplish the recommendations set forth in the DCP-3 and LCoGS publications. The recommendations from these three documents range from scale up of the most cost-effective surgical procedures, to the development and monitoring of surgical capacity using specific indicators, to the creation of a National Surgical, Obstetric and Anaesthesia Plan (NSOAP) in each country. Further political momentum came through the Sustainable Development Goals (SDGs) adopted by the United Nations (UN) in 2015. While the UN's previous Millennium Development Goals had only three targets pertaining to surgical care, within SDG3 "Good Health and Well-being", four of the targets (reducing maternal, neonatal and under 5 mortality, reducing premature deaths from non-communicable diseases, and reducing deaths from injury) will never be achieved without the scale up of surgical services. Furthermore, eight of the thirteen sustainable development goals are related to SOA care (5).

Since 2015, unprecedented interest has been generated within multinational organizations, governments, ministries, professional societies and clinicians to increase access to SOA services, with stakeholders driving changes in policy and programming surrounding surgical care. In many countries, these efforts are culminating in the development of National Surgical, Obstetric and Anaesthesia Plans (NSOAPs) that are fully embedded into a country's national health policy, strategy or plan, which is critical to ensuring countrywide implementation and scale.

Despite the increased awareness and discussion regarding the provision of surgical care in LMICs, there are still multiple obstacles faced in translating theory and existing knowledge into the provision of safe, affordable and timely surgery to those who need it. This manual acts as a guide to the components necessary to create a country specific NSOAP, drawing on the expertise and lessons learnt from countries and implementers around the world. From situation analysis to stakeholder engagement, from drafting to monitoring and evaluation, and from costing to governance, this publication provides a roadmap for national governments and ministries, funders, implementing partners and others seeking to create and implement an NSOAP **that is integrated within existing and future national health policy, strategy or plans; an NSOAP must never be a standalone document or vertical plan**. We hope that this publication serves as a useful guide for countries to adapt as they begin to address the gap in the provision of safe, timely and affordable SOA care around the globe through the development of NSOAPs.

YOUR

Notes

CHAPTER **2**

Developing a case for prioritizing and planning SOA care

Promoting surgery, obstetric, and anaesthesia (SOA) care as an international priority will require significant buy-in from a cross-section of political and social leaders. Gaining buy-in involves building a compelling, data-driven case about how SOA care contributes to the health and economic well-being of a country or region. This chapter provides guidance for developing the case for prioritizing and planning around SOA care. The first section provides a situational analysis of the current state of SOA care, describing the global burden of surgical disease, surgical care delivery capacity and the prioritization of SOA care on the international agenda. The second section describes health-related and economic arguments for urgently changing the status quo, which will be necessary if countries are to achieve international targets such as the SDGs. The third section makes the case that strategic planning is critical for affecting positive change in the provision of SOA care.

Because SOA care form an indivisible continuum of service delivery, these three components are considered together throughout this manual to allow for better coordination and efficiency of planning. Anaesthesiology is dedicated to the total care of a patient before, during and after surgery; it is also critical for resuscitation, pain management and intensive care. Safe surgery and obstetrics rely on safe anaesthesia, so improved anaesthesia care is a key factor in strengthening surgical systems. The limited availability of safe anaesthesia frequently constrains the volume of safe surgical and obstetric care in LMICs and has serious implications on outcomes (6–9). Similarly, obstetric care is also critical for a strong surgical system. Obstetric surgeries, including caesarean sections and treatment of postpartum haemorrhage, are lifesaving for mothers and new-borns; caesarean sections are the most common surgery performed in LMICs. Furthermore, the complex of infrastructure, equipment, specialist skills and allied health professional support needed for comprehensive emergency and obstetric and neonatal care (CEmONC) overlaps almost entirely with the requirements for surgical care.

2.1 THE CURRENT STATE OF SOA CARE

Surgery is a cross-cutting intervention that is critical for treating a breadth of conditions, including obstructed labour, injuries, cancer and other noncommunicable disease (NCD). However, surgical care has been widely excluded from national and international health agendas, largely because surgery's significance in treating some of the world's most pressing public health problems is underappreciated. This may be due to the prevalent but mistakenly narrow conception of surgery as being limited to complex surgical procedures and are considered non-essential. In fact, surgical care is a much broader concept that spans "operative and non-operative interventions directed at reducing the disability resulting from surgically treatable conditions" (10). Surgical interventions can reduce disability caused by a wide range of conditions, including trauma and congenital abnormalities. For example, surgery can be involved in airway stabilization for a trauma patient or in the non-operative management of head trauma (10). Box 2.1 provides an overview of key terminology related to surgery (10). This section surveys the global landscape of SOA care: the epidemiological burden of surgical disease; critical factors affecting access and capacity for SOA care (including human resources, infrastructure, impoverishment, quality of care and anaesthesia capacity); and the current funding and prioritization of surgery on the international agenda.

2.1.1 Epidemiological burden of surgical disease

Between 28% and 32% of the burden of disease in LMICs is attributable to diseases that are amenable to surgical care, representing 401 million disability-adjusted life years (DALYs)[1] lost each year – almost double the total combined DALYs for malaria, tuberculosis and HIV (214 million DALYs per year) (11,12). Scaling up basic surgical services alone could prevent an estimated 3.2% of all deaths in LMICs and reduce the total number of DALYs by 3.5%[1] (12). This section provides an overview of the epidemiological burden of surgical disease related to maternal and newborn health, NCDs, trauma and paediatric populations.

BOX 2.1

SURGICAL TERMINOLOGY

Surgically treatable condition: any condition in which surgical care can potentially improve the outcome.

Surgical care: operative and non-operative interventions directed at reducing the disability or premature death associated with a surgically treatable condition, including obstetric conditions; surgical care includes the preoperative assessment of patients, intraoperative care including anaesthesia and complete postoperative care.

Surgical procedure: the suturing, incision, excision or manipulation of tissue; or other invasive procedure that usually requires local, regional or general anaesthesia.

2.1.1.1 Maternal and newborn health

Safe surgical care is a cornerstone of maternal and newborn care. It is estimated that access to basic surgical care could prevent an estimated 233.658 maternal and newborn deaths per year and 20 million maternal and newborn DALYs each year (11). Even when high-quality antenatal care is provided to pregnant women, which can significantly reduce maternal disease, the World Health Organization (WHO) estimates that between 10% and 15% of pregnancies will require caesarean sections to avoid death and disability in the mother and child; caesarean section rates of up to 19% have been shown to be beneficial (13,14). Adequate access to caesarean sections for obstructed labour can prevent long-term disabilities, such as obstetric fistula, which affects between 50.000 and 100.000 women per year worldwide (15). Although worldwide data are lacking, it is thought that 0.20–10.5 per 1000 deliveries worldwide require a peripartum hysterectomy to avoid or treat life-threatening haemorrhage (16). Between 8% and 11% of maternal deaths result

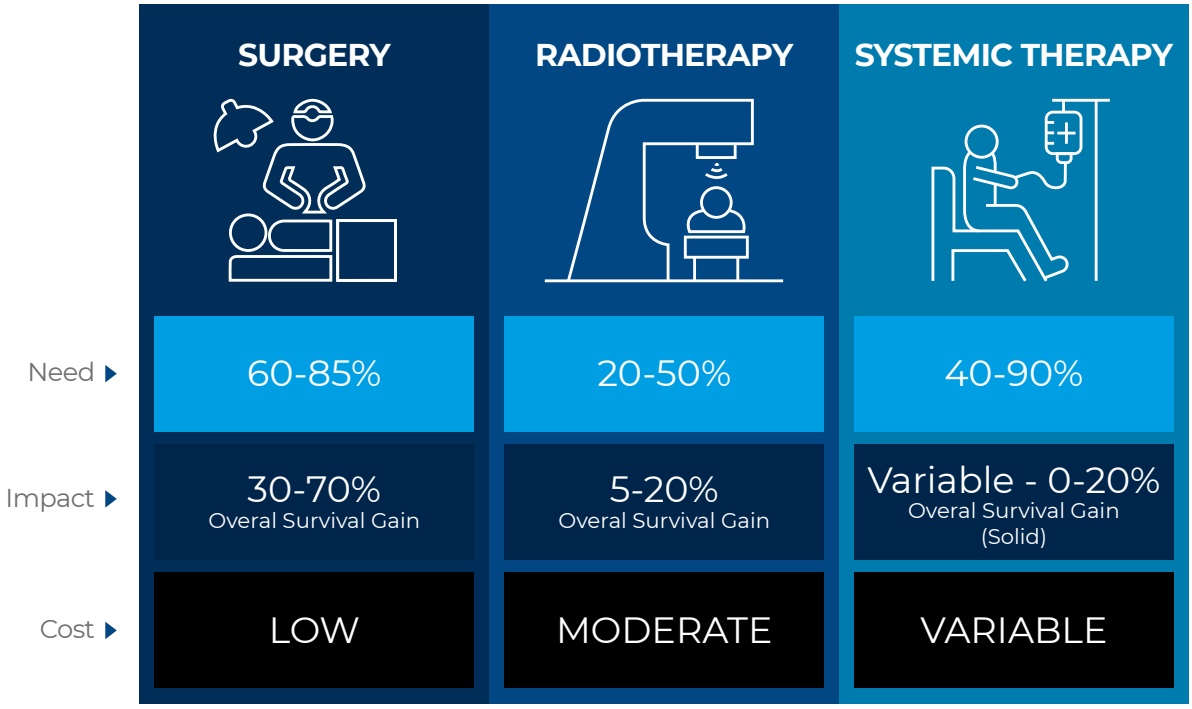
[1] DALYs are the most widely used metric for quantifying the burden of disease.

from abortion, miscarriage and ectopic pregnancy; although medical treatments are available for simple cases, complex cases carry a higher risk of death and often require surgery (17). Expansion of safe anaesthesia is also crucial for maternal health care: 3.5% of all maternal mortality and 13.5% of deaths after caesarean section are attributable to poor anaesthesia care (18)

.2.1.1.2 Noncommunicable diseases

NCDs represent the largest and fastest growing disease category worldwide. According to WHO estimates, around 40 million (71.3%) of the 57 million global deaths in 2016 were attributable to NCDs (19). Only a proportion of the NCD burden is classified as preventable, which amplifies the need for better strategies to treat NCDs when they occur. Surgery is critical for treating almost all common NCDs, including cancers, cardiovascular disease and stroke. Surgery is an integral part of the treatment of NCDs, such as blindness, amputation or other complications related to diabetes. According to GLOBOCAN[2] incidence estimates, cancer is the second leading cause of death globally – causing more than 9.8 million deaths worldwide in 2018 with estimates that this number will rise to 30 million by 2030 – and more than 60% of cancer cases require treatment with surgery. The mortality rate is greater than 70% among diagnosed cancer cases in sub-Saharan Africa (20). Compared to radiotherapy and systemic therapy, surgery for solid tumour cancers addresses the greatest need, with the highest impact and at the lowest cost (21) (see Fig. 2.1). Investment in screening and vaccination for cancers, particularly breast and cervical cancer (for example, the human papillomavirus vaccine) is increasing, but there has not been concurrent investment to expand surgical capacity and access to treat the cancer cases that will be additionally detected through screening.

Fig. 2.1 Need, impact and cost of surgery for cancer versus other therapies



Sources: Figure credit to André Ilbawi, Technical Officer, World Health Organization, Geneva, Switzerland; data from WHO (21,22).

[2] The International Agency for Research on Cancer's GLOBOCAN database provides contemporary estimates of the incidence, mortality and prevalence of 28 types of cancer in 184 countries worldwide.

Cardiovascular disease is the leading cause of death and mortality worldwide, with 17.86 million attributable deaths in 2016 (19). Although prevention is the best way to control this disease, a large and increasing volume of patients will inevitably require open or minimally invasive surgical care, such as coronary artery stenting, bypass grafting, valve surgery and cardiac transplantation. In addition to its effects on the heart, cardiovascular disease has a profound effect on the brain. Globally, 70% of strokes occur in LMICs and the incidence is continuing to rise rapidly. In low-income countries, compared with high income countries populations have an increased propensity for haemorrhagic stroke; these strokes are more likely to be amenable to neurosurgical care to reduce death and disability (23).

2.1.1.3 Trauma

Injuries represent the largest burden, estimated at 68%, of avertable surgical deaths (1). Although injuries occur due to a wide range of trauma, such as falls, burns, occupational accidents and interpersonal violence, the greatest burden of mortality and morbidity is attributable to road traffic injuries. Road traffic injuries are the leading cause of mortality in people aged 15–29, and causes 1.25 million deaths per year – 90% of which occur in LMICs (24). In most countries, road accidents cost around 3% of the gross domestic product (GDP). A coordinated effort to improve the impact of road trauma is being led by the UN Road Safety Collaboration, which is working to prevent road accidents as well as improving trauma care for patients following accidents. The SDGs have a specific target aiming to reduce the number of deaths from road traffic accidents by 50% by 2030. A functional trauma network, including a robust prehospital system and surgical team are crucial for improving outcomes for trauma patients. Surgical intervention is life-saving in many trauma cases and for many non-operative trauma cases, comprehensive surgical care is needed to assess, stabilize and rehabilitate patients (25,26).

According to 2004 estimates, more than 30 000 new burns occur globally each day, representing more than 11 million burns per year (27). Although most burns are non-fatal, they have high morbidity rates: the lack of effective preventive measures, compounded by poor access to acute burn management, make burn-related disabilities and disfigurements very common. These disfigurements are a cause of social segregation/discrimination and also only correctable by surgery. LMICs bear more than 70% of the global burden of burns, with two thirds of burns occurring in Africa and Southeast Asia. More than 95% of fire-related burns and 90% of fire-related deaths also occur in LMICs (28). Improved outcomes from burns is possible through effective burn prevention strategies, coupled with safe, affordable and effective emergency and essential surgical burn care. An estimated 12.1% of preventable deaths from burns are avoidable with the provision of basic surgical care (10).

2.1.1.4 Paediatric populations

Over one and a half billion children among the estimated five billion people worldwide lack access to safe, affordable SOA care (29). According to the World Bank Group, an average of 43% of the population is aged 15 years or less in countries in sub-Saharan Africa; the proportion is as much as 50% in some of those countries (30).

Surgery in the paediatric population covers some conditions that are common to adults and children – such as trauma and appendicitis. However, many diseases specific to the children also require surgery, such as neoplasms, and congenital anomalies such as club foot, orofacial clefts, heart and gastrointestinal conditions. Small children, particularly neonates, carry a significantly higher risk in surgical care due to their small size and low blood volume. This makes it challenging for non-specialist surgery and anaesthesia providers to care for this population group. Untreated, many congenital conditions are fatal, and many paediatric conditions carry the risk of lifelong disability and impart a disproportional effect on economic productivity. Surgical correction of these conditions averts a significant number of Disability-Adjusted Life Years (DALYs) due to long life expectancy following surgery. According to the limited data available from LMICs, surgical conditions account for 6-15% of paediatric admissions in sub-Saharan Africa (11,31,32). In a survey of children aged 0–18 years in four LMICs, 11-28% of the sample had a surgical need (31). Another study found that 85% of children may require surgical care by the age of 15 years (11,32). The injury mortality rate for children aged 1–4 years in sub-Saharan Africa is 183.6 per 100 000, compared with less than nine per 100 000 in Organisation for Economic Co-operation and Development countries (32).

2.1.2 Access and capacity

2.1.2.1 Access

Five billion people around the world lack access to safe, timely and affordable SOA care with access is poorest in LMICs. Capacity for high-quality SOA care is lacking in most LMICs, with an estimated 143 million additional procedures needed in LMICs each year to save lives and prevent disability. Currently, only 6% procedures performed annually occur in the poorest countries, home to one third of the world's poorest populations (1). The need for additional surgical procedures is greatest in south Asia and in eastern, western and central sub-Saharan Africa. Issues exist across the entire health systems in these regions, starting with low surgical capacity at the first and district levels. When appropriately staffed and equipped, first-level hospitals should be able to provide 80–90% of basic surgery procedures (10). To capture capacity for performing basic surgery, three procedures have been chosen as "Bellwether" procedures to act as a proxy measure for the ability of a hospital to carry out basic surgery, anaesthesia and obstetric care (1). These are laparotomy, caesarean section and fixation of an open fracture. However, large global studies have shown that at first-level hospitals, only 64% could provide a caesarean delivery, 58% could provide a laparotomy and only 40% could provide surgical treatment for an open fracture. The lack of provision at the first and district-level hospitals leads to excessive referrals to tertiary care. In addition to delaying treatment and exacerbating catastrophic expenditure, these referrals also place an undue burden on tertiary level hospitals, which often operate at 200–300% capacity (1).

The lack of SOA care provision at the first level is multifactorial, with contributing factors ranging from inadequate human resources and staffing, poor infrastructure and equipment, and limited management and leadership capacity. In 2015, collaborators from 110 countries came together under the auspices of LCoGS. The LCoGS identified five key messages to describe the current global surgical capacity and to underscore the human and economic consequences of the unmet surgical burden of disease (see Box 2.2) (1).

BOX 2.2

STATUS OF SURGICAL CARE WORLDWIDE

In 2015, the LCoGS developed five key messages about the status of surgical care worldwide.

- An estimated 5 billion people lack access to safe, affordable surgical and anaesthesia care when needed.
- An estimated 143 million additional surgical procedures are needed each year to save lives and prevent disability.
- An estimated 33 million individuals face catastrophic health expenditure due to payment for surgery and anaesthesia each year.
- Investment in surgical and anaesthesia care is affordable, saves lives and promotes economic growth.
- Surgery is an indivisible, indispensable part of health care.

2.1.2.2 Human resources

Multiple clinical and non-clinical staff cadres are required to provide comprehensive surgical service delivery. These include community health workers, hospital managers, operating theatre technicians, surgeons, anaesthesiologists and obstetricians (who may already be trained or still be in training), generalist physicians, associate clinicians providing surgical and anaesthesia care, mid-wives, educators, rehabilitation specialists, including physiotherapists, occupational therapists, speech therapists amongst others, and diagnosticians in laboratory, pathology and radiology sciences. Many countries face significant workforce deficits in all these areas, with shortages compounded by poor distribution of staff. According to WHO's global surgical workforce database, in low-income countries the average number of specialist SOA providers is just 0.7 per 100 000 population. In LMICs, the average of 5.5 per 100 000 is still well below the target of 20–40 per 100 000 recommended for an adequate health system (1). Based on UN World Population Prospects to 2030, an estimated 2.28 million additional specialist SOA providers will be needed worldwide to reach the target of 20–40 specialist SOA providers per 100 000 population by 2030 (33).

2.1.2.3 Infrastructure

WHO's situational analysis tool was used to survey 800 facilities in LMICs, revealing common problems with the very basic infrastructure required to provide surgery. Among the facilities surveyed, challenges to providing surgical care included lack of electricity (31%), running water (22%), oxygen (24%) and postoperative care space (47%). A survey of 88 countries found that the average number of operating rooms was 5.5 per 100 000 population, which will need to nearly double to 9.8 per 100 000 to meet the projected growth in surgical demand (34). In addition to basic infrastructure needs, facilities urgently need context-appropriate surgical equipment; several essential equipment lists have been proposed to help meet those needs. In terms of anaesthesia specifically, WHO's Situational Analysis Tool database reports that 55% of district hospitals surveyed across eight African countries did not have an anaesthesia machine and 70% of operating rooms in parts of sub-Saharan Africa lack pulse oximetry; and lack of laryngoscopes was widely reported (1).

2.1.2.4 Impoverishment

Financial barriers affect patients seeking surgical care in two ways. Firstly, financial barriers can prevent patients from seeking care at all. Secondly, many patients who can access and receive care are left catastrophically impoverished by the costs of care and are left to suffer the health and social consequences of poverty. This problem is widespread, with 33 million individuals facing catastrophic expenditure each year that is secondary to out-of-pocket payments for surgery and anaesthesia care (12). This number increases to 81 million people when indirect expenses are included, such as lost wages, travel expenses, food expenses. Again, this risk is greatest for people in LMICs, as well as for the poorest, most vulnerable people within any country.

2.1.2.5 Quality of care

As well as stark inequalities in access to surgical care, inequalities also exist in the quality and safety of the SOA care received by patients. Data on quality of surgical care is notably sparse and heterogeneous, with most studies being small and focused on just a single aspect of quality such as post-operative mortality or surgical site infections (35). Multiple studies have shown that postoperative mortality in LMICs exceeds that of high-income countries (36). A study by Biccard et al. found that mortality rates across 25 African countries are twice the global average when compared with high-income cohorts, despite the African patients being younger and having fewer co-morbidities (37).

2.1.2.6 Anaesthesia capacity

A lack of access to anaesthesia is often the limiting factor in the quantity and complexity of surgical care delivered (6–8). Although anaesthesia-related mortality has fallen steadily to around one death per 200 000 in high-income countries, evidence indicates that anaesthesia-related mortality rates remain much higher in some LMICs (6). A systematic review of perioperative mortality showed that anaesthesia-related mortality rates in Thailand are as high as one per 1754 – more than 100 times the international average for high-income countries. Of SOA specialists, the anaesthesia workforce remains the most deficient; a 2015 survey by the World Federation of Societies of Anaesthesiologists found that 77 countries worldwide reported a density of physician anaesthesia providers of less than five per 100 000 (38). Even when non-physician anaesthesia providers are taken into account, 70 countries reported a total anaesthesia provider density of less than five per 100 000 (38).

2.1.3 Current funding and prioritization of surgery on the international agenda

A 2008 editorial by Paul Farmer and Jim Kim described surgery as the "neglected stepchild of global health" (2). In 2011, correspondence in the Lancet noted that surgery was not mentioned once during the high-level meeting on NCDs at the UN (39). A 2015 study of national health plans in sub-Saharan Africa reported that 63% of plans had less than five mentions of surgery and 33% had no targets relevant to surgery (40). In comparison, over 95% of the national health plans specifically report the prevalence of HIV, tuberculosis, infant mortality and maternal mortality, with associated targets for each. A study of funding flows from 160

charitable organizations showed that expenses focused on surgical conditions totalled US$ 3.1 billion – or 11% of total charitable global health spending – despite surgical conditions representing 28–32% of the burden of disease (41). Additionally, funding for surgery was usually siloed into vertical, disease-specific interventions, most commonly for ophthalmological or cleft-related procedures. The total development assistance for strengthening of surgical systems is not well tracked.

Since 2015, a significant momentum has been generated around advancing the case for surgery as a public health measure and for the inclusion of SOA into health systems planning. In 2015, emergency and essential surgery and anaesthesia care were officially included as part of the recommended UHC package through the unanimous passing of resolution WHA68.15 by the World Health Assembly. The same year saw the publication of LCoGS and the inclusion of *Essential Surgery* as the first volume of DCP-3. These strides forward have led to a growing and increasingly cohesive movement around SOA care. As of 2018, four African countries had created and invested in strategic plans specifically for the improvement of their SOA systems.

2.2 WHY SOA CARE MUST BE PRIORITIZED

The previous section described the global burden of surgical disease, factors underlying access to and capacity for SOA care and the escalating prioritization of surgery on the international agenda. This section explores the central role of SOA care in health systems and why surgical care must be prioritized for countries to reach their economic and health targets. The section is framed by three key arguments for improving access and quality of SOA services.

Improved SOA care is required to meet the many of the SDG targets, in particular SDG 3 of promoting health and well-being for all at all ages and SDG 3.8 which aims to attain Universal Health Coverage by 2030.

Improved SOA care will improve health and well-being which will enable to achievement of other SDGs.

Expansion of SOA care is a cost-effective intervention to improve the health of a population through strengthened health systems and improved health outcomes.

2.2.1 SOA care is required to meet the SDGs

The integration of surgery into national health agendas is crucial for meeting the SDGs, which were adopted by world leaders as a unified vision for the future of health, prosperity and development by 2030. Improved SOA care can contribute to supporting almost all of the SDGs through its role in poverty reduction and in improved health and productivity. However, six of the SDGs are highly dependent upon improving SOA care: SDGs related to good health and well-being (SDG 3); SDGs related to gender equality (SDG 5); and SDGs related to economic improvement, including an end to poverty (SDG 1), decent work and economic growth (SDG 8), reduced inequalities (SDG 10) and creating the partnerships necessary to make this a reality (SDG 17).

2.2.1.1 Good health and well-being

Given that a considerable proportion (28–32%) of the global burden of disease requires surgical care, SDG3 on good health and well-being cannot be achieved without addressing this burden, especially in LMICs (42). Within SDG 3 there are nine targets specifically related to SOA care (see Box 2.3); SOA care is absolutely essential to fulfilling four of these targets: 3.1 (reduce maternal mortality), 3.2 (reduce infant and under-5 mortality), 3.4 (reduce premature deaths from NCDs) and 3.6 (reduce the number of deaths and disabilities from road traffic accidents).

Target 3.8 on universal health coverage is particularly important because it provides the necessary prerequisites, including scaling up of SOA, for the attainment of the other targets of this goal.

Scaling up SOA care will be crucial to improving the maternal mortality ratio to less than 70 per 100 000 population (SDG 3.1) and reducing the perinatal mortality rate to as low as 12 per 1000 live births (SDG 3.2). Robust evidence demonstrates that access to safe CEmONC reduces maternal and perinatal mortality (13,14,43,44). Around 8% of maternal deaths result from obstructed labour and many of those who survive obstructed labour suffer disability, such as obstetric fistula.

The recommendation for a population-level caesarean section rate of 10% of live births is equivalent to rate up to which caesarean sections have been shown to decrease maternal mortality (when adjusted for social factors) (13). A study by Molina et al. analysed 22.9 million caesarean sections and determined that a national caesarean section rate of up to 19% was correlated with a lower neonatal mortality rate however worldwide 10% is considered optimal (13,14). Safe emergency caesarean sections require a strong health system with

specialist SOA staff. Safe anaesthesia is a crucial part of obstetric care. Poor quality care is identified as the cause of 3.5% of deaths due to obstetric complications and 13.8% of post-caesarean section deaths (18) (18). Surgical care is also critical for safe treatment of retained products of conception, ectopic pregnancies, repair of obstetric fistulae, cervical cancer and other gynaecological cancers.

SDG 3.4 aims to reduce by one third the premature mortality rate attributed to non-communicable diseases. As mentioned previously, a high proportion, including 60% of all cancers, will require surgery and a strong perioperative surgical system. Additionally, surgical services are required for the treatment of cardiovascular disease through minimally invasive or open cardiac and vascular techniques. Neurosurgical capacity is also required to reduce the morbidity associated with stroke.

Another explicit goal of the SDGs is to reduce by one half the global deaths and injuries from road traffic accidents (SDG 3.6). Comprehensive SOA care, along with strong pre-hospital and emergency care systems, are required for the treatment trauma patients, and many of those who do not require intervention in the operating room will need surgery and anaesthesia services for accurate assessment and stabilization.

BOX 2.3

SDG TARGETS DIRECTLY RELATED TO SOA CARE

Target 3.1.1
By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births per year.

Target 3.2.1
By 2030, end preventable deaths of children aged 5 years or less with all countries aiming to reduce under-5 mortality to at least as low as 25 per 1000 live births per year.

Target 3.2.2
By 2030, end preventable deaths of new-borns, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births per year.

Target 3.3.1
Reduce the number of new HIV infections per 1000 uninfected population by sex, age and key populations.

Target 3.4.1
By 2030, reduce by one third premature mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease.

Target 3.6.1
By 2020, halve the number of global deaths and injuries from road traffic accidents.

Target 3.7
By 2030, ensure universal access to sexual and reproductive health care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.

Target 3.8.1
By 2030, achieve UHC including financial risk protection, access to quality essential health care services, and access to safe, effective, quality and affordable essential medicines and vaccines for all. Coverage of essential health services is defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, new-born and child health (RMNCH), infectious diseases, NCDs and service capacity and access, among the general and the most disadvantaged population.

Target 3.B
Support the research and development of vaccines and medicines for the communicable and NCDs that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health.

Target 3.C
Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing states; measured by health worker density and distribution.

2.2.1.2 Gender equality

SDG 5, Gender equality will never be achieved as long as mothers and neonates continue to die in the absence of life-saving surgery. In addition to saving mothers' lives and avoiding disability from childbirth (for example, obstetric fistula), surgical care plays a significant role in empowering women to make decisions about their reproductive future, through options for safe sterilization and abortion care. Surgical care is also critical for successful sexual, urological and reproductive function in women who have been affected by female genital mutilation. Gender equality is also required for the attainment of SDG 4 which is to provide quality education by empowering women and girls with their reproductive rights. Gender Equality is also key to attaining SDG 10, the reduction of inequality.

2.2.1.3 No poverty, decent work and economic growth, and reduced inequalities

Across 128 countries that account for 90% of the global population, the estimated value lost due to untreated conditions requiring surgery is US$ 20.7 trillion, or 1.3% of the projected economic output of the global economy (1). These economic losses exceed by 50-fold the estimated US$ 350 billion that would be required to scale up SOA care in LMICs at an aspirational rate by 2030. More than half of these economic losses will occur in LMICs, which is an unacceptable financial inequality.

Each year, 33 million individuals face catastrophic health expenditure due to personal (out-of-pocket) payment for surgery and anaesthesia care. The burden of untreated surgical disease disproportionately affects rural, impoverished and marginalized populations. The lack of SOA services or poor-quality care can lead to chronic disability, death and loss of economic productivity for individual families and for communities as a whole. A survey of patients undergoing cataract surgery in Pakistan found that 85% of men and 57% of women who had lost their jobs as a result of blindness regained those jobs after cataract surgery; in the first year alone, their regained vision generated 1500% of the cost of the surgery in increased economic productivity (45).

2.2.2 SOA care is required to reach goals of UHC and primary health care coverage by 2030

Emergency and essential surgery and anaesthesia care are integral components of UHC, following the unanimous passing of resolution WHA68.15 in 2015. UHC is defined by WHO as "ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services". The World Bank and WHO define targets for worldwide coverage as 80% of all essential health services and 100% protection from out-of-pocket expenses by 2030. Given that five billion people currently lack access to safe, timely and affordable SOA care, meeting the targets for UHC will require a 250% increase in access to SOA care by 2030.

District-level hospitals should be able to deal with 80–90% of essential surgical conditions, therefore SOA care should also be supported in all efforts to improve primary health care. In recognition of this, "improvement of surgical care at the district hospital" was identified as one of the most effective ways to advance global welfare in the Copenhagen consensus, which included five economic Nobel laureates (46).

SOA care requires many elements of the health system to function well. In addition to the ecosystem within the operating theatre and capacity for postoperative rehabilitation, additional elements include community education, prehospital care, emergency department care, robust supply chains of consumables, and laboratory services. Many of these services are shared, so building SOA care capacities can also improve the functions of multiple other elements in the hospital. For example, a secure supply of antibiotics for surgery helps to reduce postoperative sepsis in surgical patients, but it will also help reduce under-5 mortality from pneumonia. Similarly, improved anaesthesia and critical care capacity can help expand the volume and complexity of surgical care, but it will also provide life-saving care for critically unwell medical patients.

2.2.3 Surgery is cost-effective

Despite the perception that surgical care is complex and cost-prohibitive, surgery has been shown to be highly cost-effective (47). The cost of scaling up surgical services to address the surgical burden of disease in LMICs is 50-fold less than the estimated losses that are attributable to untreated conditions requiring surgery (34). The estimated cost to scale up delivery of the identified essential surgical procedures at first-level hospitals worldwide is US$ 3 billion annually, with a benefit-to-cost ratio of 10:1. Surgical care is unequivocally one of the most cost-effective public health interventions, comparable to oral rehydration therapy, vitamin A supplementation and antiretroviral therapy for HIV (3,47,48). Some of the most cost-effective interventions may be those in paediatric surgery, which provide lifelong disability aversion and societal benefit (49).

2.3 WHY ENGAGE IN NATIONAL SOA PLANNING?

In a seminal paper in 2007, Shiffman identified four areas required to transform a public health issue into a priority (50).

- **Actor power:** the strength of the individuals and organizations concerned with the issue.
- **Ideas:** the ways in which those involved with the issue understand and portray it.
- **Political contexts:** the environments in which actors operate.
- **Issue characteristics:** the scale of the issue and strength of the data to support it.

Each of these areas are pre-requisites for generating the political will to create of national, subnational or regional SOA plans. Once developed, the NSOAPs in contribute to strengthening each of these four areas and continuing to keep SOA care as priority on the health agenda. Additional benefits derived from NSOAPs are the capacities to promote more efficient use of resources and to act as a platform for investment.

2.3.1 Actor power: Visibility and stakeholder engagement

The process of developing an NSOAP promotes visibility around SOA care. The consultative process of NSOAP development sensitizes communities, institutions and civil society actors to SOA issues. Because these stakeholders will eventually be responsible for implementing the NSOAP, the process begins by mobilizing stakeholders, building awareness and garnering the political will to affect change. The process of mobilizing stakeholders also allows for identifying the leaders or champions who will drive the efforts during the development phase and – most importantly – during the critical implementation phase.

2.3.2 Ideas: Building a cohesive vision

The process of developing an NSOAP engages multidisciplinary stakeholders from government, civil society, private and all other sectors to collectively agree upon priorities of a country-specific plan within the context of government priorities. These priorities can then be translated into concrete, implementable actions with an associated accountability structure – through rigorous, clearly defined monitoring and evaluation – to ensure these goals are met. A shared vision between NSOAP planners and those who control resources, helps bring clarity to the issue and drives the prioritization of NSOAPs. Further, the consultative, consensus-building process of developing the plan gives a voice to stakeholders, such as frontline health workers, who are often excluded from this type of national-level discourse. The NSOAP process ensures that priorities are set locally and strategically, rather than being driven by external forces which may safeguard against political turnover or changes in priorities. The plan emerges from a consensus of the stakeholders who will ultimately be the implementers, increasing the likelihood of support and motivation to implement the plan.

2.3.3 Political contexts: Integration and accountability

NSOAPs facilitate the integration of SOA care into the national health strategy and planning. Since SOA care is closely aligned with many existing targets, including the SDGs and UHC, and the NSOAP provides a platform to inform how improving SOA care is an integral component for meeting these goals. Once it is signed, the NSOAP also creates a mechanism for stakeholders to hold implementers accountable for the reforms that have been promised, which can be maintained through the NSOAP's objective monitoring and evaluation targets.

2.3.4 Features of the problem: Making a case through data

As part of the NSOAP process, country-specific data are gathered during the situational analysis. The data can help to make clear, evidence-driven, context-specific arguments about the urgent need to improve access to quality SOA care. This process also allows for robust gap analysis and for building group consensus about how to deliver optimal solutions within the local contexts. The NSOAP monitoring and evaluation framework provides updated data that can be used to strengthen advocacy around the issue.

2.3.5 Efficiency

Through improved coordination among government programmes and partners from the private sector and civil society, NSOAPs can promote greater efficiency in the allocation of existing resources. Coordination ensures that no single domain of the plan is developed in isolation – for example, building new operating rooms without considering how they will be staffed or equipped. Coordination between representatives of all sectors also avoids duplication of efforts; this is especially important given that efforts to strengthen SOA care overlap with efforts to improve disease-specific care (and vice versa). In another efficiency-related benefit, national surgical planning can provide an organizing framework to convene political, technical and financial support from national and international bodies.

2.3.6 Platform for investment

NSOAPs can lead to more efficient distribution of resources by improving the coordination of national and international investments that are used to finance the implementation of the plan. More efficient and transparent use of domestic resources will be critical for meeting the projected US$ 350 billion investment gap that is required to scale surgical services to meet the SDGs (34). Further, the combination of well-articulated plans and rationales with prioritized, costed implementation strategies and related time-bound targets can serve as an attractive platform form investment.

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CHAPTER **3**

The SOA planning process

Chapter 2 described how an NSOAP can help strengthen surgical systems as well as health systems as a whole. This chapter offers a step-by-step guide for developing an NSOAP. The steps are intended to serve as a guide and should be adapted to the local context. They do not necessarily need to be completed in the order presented here. Some countries may choose to take a regional approach to national SOA planning, while other countries may prefer to test programmes and generate evidence prior to policy setting and scale up. This manual focuses on a top-down approach to improving SOA care, but there are many equally important and successful bottom-up programmes contributing to worldwide NSOAP efforts. For examples of other frameworks for surgical health systems strengthening, please refer to WHO's publication *Surgical Care Systems Strengthening* (51).

Subsequent chapters will add detail to each step, highlight potential challenges and provide recommendations to assist in the NSOAP process.

3.1 GENERAL PRINCIPLES OF PLANNING

A successful NSOAP needs champions. Ideally, a champion is a person who understands the process, who has expertise in SOA, who is passionate about establishing an NSOAP and who has the respect and influence to guide initial efforts. A champion can play an integral role at each step of the NSOAP process by providing leadership, motivation and direction. A country's ministry of health (MoH) will be the primary driver of the NSOAP, but in many countries, the MoH may not be familiar with the concept. A champion can help to introduce the concept and strategy of the NSOAP in order to encourage MoH buy-in for the process. Depending on the setting, it can be helpful to create an NSOAP lead team made up of a small group of individuals – including champions, MoH representatives and SOA society representatives – who can serve together as the leaders throughout the process. An additional consideration is whether to engage external consultants to assist with the NSOAP process. Consultants may provide expertise in areas such as monitoring and evaluation, as well as administrative support.

NSOAPs are designed to facilitate direction and coordination for provision of SOA services. In most cases, strategic plans are just the beginning of a national effort to improve a health system. To execute the NSOAP, each activity will typically require more exhaustive planning than the main NSOAP will allow – for example, setting exact month-to-month timelines and adjusting scale based on the budget. Each activity also needs to be responsive to what has and has not been successfully implemented by each milestone. Setting a clear timeline for NSOAP development activities helps to prevent the process from becoming too drawn out, because fatigue and loss of momentum can threaten the successful completion of the plan. Multiple countries have completed an NSOAP including Zambia (see Box 3.1), Ethiopia, United Republic of Tanzania, Rwanda and Nigeria, with over a dozen countries in the progress of completion.

3.1.1 NSOAP models

Each country is unique in terms of its governance, management structure and MoH functionality. The NSOAP is specifically designed to be fully embedded (or incorporated) into the national health policy, strategy and plan. Based on the countries that are developing NSOAPs to date, three distinct models have emerged.

3.1.1.1 Centralized Model

In the centralized model, the NSOAP process of policy development is led by centralized efforts from the MoH and the implementation processes are driven through central agencies such as the MoH and Ministries of Finance. In this model, the MoH leads the process and is the champion that coordinates the development of the NSOAP, working closely with stakeholders and gaining consensus from academic institutions, NGOs, public and private agencies, professional societies and international organizations including donors and organizations operating in the country. The MoH also gathers necessary information, conducts the necessary assessments and finally the development and launch of the NSOAP. The MoH in coordination with these stakeholders, sets out a national plan that aligns with government priorities and its national health policy, strategy and plan. It

is essential to explore factors such as the political, economic and geosocial ecosystems that define a country's context before embarking on such a plan. The country context will influence the health system development process in order to develop and NSOAP fitting its circumstances. Countries that have pursued a centralised model include Zambia, Tanzania, Ethiopia, Nigeria and Rwanda.

BOX 3.1

ZAMBIA'S NSOAP PLANNING PROCESS

Following the 68th World Health Assembly, Zambia embarked on the creation of an NSOAP using the Lancet Commission framework and presented the completed plan in May 2017. The process began in 2016, with the recognition of the need for an NSOAP by key stakeholders including Dr Emmanuel Makasa, Counsellor of Health for the Permanent Mission of the Republic of Zambia to the United Nations, Dr Peter Mwaba, Permanent Secretary in the MoH of Zambia, and Dr Kennedy Lishimpi (Director of Clinical Care and Diagnostic Services). With full support from Zambia's MoH, a larger group of stakeholders relevant to surgical system strengthening was assembled to work on the plan. The six surgical indicators for Zambia were identified by utilizing Zambia's health management information system with support from the Institute for Health Metrics and Evaluation. Stakeholders were then divided into three committees to focus on different domains, including service delivery and infrastructure, workforce and information management and financing. Implementation of the NSOAP is underway and has already increased capacity for training surgical and anaesthesia providers, increased the number of theatre nursing staff being trained, and improved the distribution of trained personnel across the country. For more detail on Zambia's NSOAP process, see Mukhopadhyay et al (52).

3.1.1.2 Decentralized model

Countries that have a devolved health system structure where the authority is shared between the federal government and its states, federal units or provinces, might be better suited to a decentralized model. In this model, the role of health policy planning and implementation is devolved into each state or provincial governments; states or provinces have autonomy in planning and resource allocation for essential health services. Thus, each takes the responsibility in the provision of preventive and curative services for their respective state or province health needs. The states or provinces might hold responsibilities ranging from framing local rules or regulations, developing standards for drugs quality control, patient safety to education and training of health care professionals. The NSOAP process can be adapted and customized to match this configuration. In this model, the role of the federal MoH might be limited to providing national-level policy guidelines, overseeing health regulation, national disease surveillance, providing a template or a generic plan that can be adapted by the state or province, coordinate efforts to identify priorities and guide decision making and liaise with international partners. An example of a decentralized model is Pakistan's NSOAP. Pakistan has a health governance structure where the role of policy implementation is devolved to the provincial governments making it a federal-provincial model. In this case, the NSOAP process has been adapted to match the country's structure and operational dynamics.

BOX 3.2

PAKISTAN'S NSOAP PLANNING PROCESS

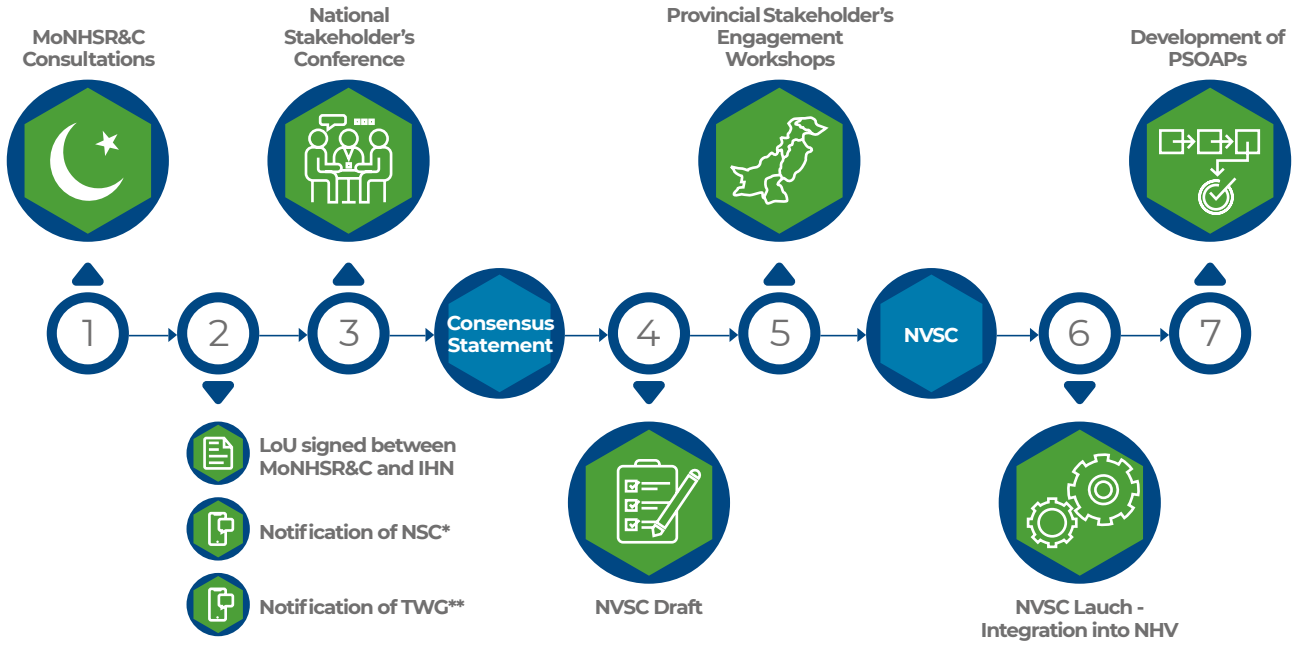
Pakistan's federal-provincial model has driven the NSOAP process to be adapted and customized in line with the country's health governance structure and operational dynamics. Pakistan's Ministry of National Health Services, Regulation and Coordination (MoNHSR&C) led the development of the National Vision for Surgical Care 2025 (NVSC2025), which supplements the current National Health Vision (NHV) 2016-2025. Developed by the MoNHSR&C in collaboration with the provincial departments of health, NHV 2016-2025 provides a strategic direction for Pakistan's health priorities. Since surgical care was not explicitly stated as a health priority, NVSC2025 aims to fill that gap.

The MoNHSR&C and Indus Health Network jointly hosted a national stakeholders conference in Islamabad in November 2018. The participants included relevant stakeholders from federal government, provincial health departments, professional societies, public and private sector specialists, national and international academic institutions and organizations. A consensus statement was drafted at this forum, which provided a framework for the developed NVSC document. The MoNHSR&C has established a steering committee to provide oversight for the process, and a technical working group (TWG) that is responsible for conducting a situation analysis based on which the NVSC document has been drafted. In this regard, the TWG held a series of consultative workshops in each provincial capital in February - March 2019, to introduce the process to each provincial government and an additional tier of local stakeholders. The NVSC2025 document has been submitted to the MoNHSR&C for final review, approval and dissemination.

The NVSC2025 document provides a guideline for each provincial Department of Health to develop a Provincial Surgical, Obstetric and Anaesthesia Plan (PSOAP) that is customized to address the specific surgical needs of each province's population. The process in Pakistan has adapted the NSOAP framework in two distinct but interlinked phases that align well with the country's devolved system of government. The initial ministerial and stakeholder involvement was conducted in parallel with a detailed gap assessment in Pakistan to develop NVSC2025. These steps have been replicated at a provincial level, following which drafting of customized PSOAPs will be initiated, including defining M&E, governance and costing components in line with each province's needs and resources.

Even though this process is a longer one with multiple tiers of stakeholder involvement, it is well adapted to the country's system of government. Keeping in mind the large population that this intervention aims to serve, it is expected that ownership and implementation at a provincial level will lead to better eventual outcomes.

Figure 3.1 Roadmap for Pakistan's Surgical Care Strengthening: from National Vision to Provincial Plans



National Steering Committee (NSC)* consisting of representatives from international and national public and private stakeholders to oversee and coordinate the process being the decision maker.
Technical Working Group (TWG)** consisting of international and national partners to conduct research, provide technical support throughout the process and draft documents.
Ministry of National Health Services, Regulation and Coordination (MoNHSR&C); Letter of Understanding (LoU); Indus Health Network (IHN).
National Vision for Surgical Care (NVSC); National Health Vision (NHV); Provincial Surgical, Obstetric and Anaesthesia Plan (PSOAP).

Figure credit to: Syeda Mahnoor Rizvi – Indus Hospital, Karachi, Pakistan

3.1.1.3 Regional Model

The regional model is one that has recently emerged as an innovative approach to NSOAP development. This model leverages and builds upon existing inter-governmental platforms of countries that share similar political, geographic and socio-economic dynamics. In collaboration, member states will develop and implement a regional strategic policy to strengthen SOA service delivery, with a shared research and accountability processes for the cooperating Member States that provides information on the annual progress, performance/ impact, monitoring and evaluation, and updates. The regional model offers an innovative collaborative platform between those Member States that could probably formulate similar policy plans and foster scientific and technical development in surgical service delivery, especially the setting up of standards which enable establishment of equivalents in training and compensation across countries. This regional model could also work for countries that are already sharing cross-border technical and scientific expertise to build partnerships and facilitate rapid expansion of access to surgical care in the region. This will also help improve resource mobilization including finances and efficiencies to achieve collective goals. A regional NSOAP model could emerge in neighbouring countries that have an intergovernmental organization fostering collaborative exchanges.

BOX 3.3

THE SADC NSOAP PLANNING PROCESS

The Southern African Development Community (SADC) is an intergovernmental organization that fosters socio-economic, political and security cooperation between the 16 Member States of Southern Africa. The SADC has embarked on a regional strategic approach to NSOAP development with the objective of strengthening surgical health systems. In November 2018, the Ministers of Health from the 16 SADC Member States deliberated and adopted a decision to strengthen surgical health care by incorporating NSOAP work into the SADC Health Protocol while targeting the development and integration of the NSOAP into their respective national health sector strategic plans by the end of 2019. The SADC region member states are working together in framing the NSOAP policy development and implementation plans together with the concomitant implementation research.

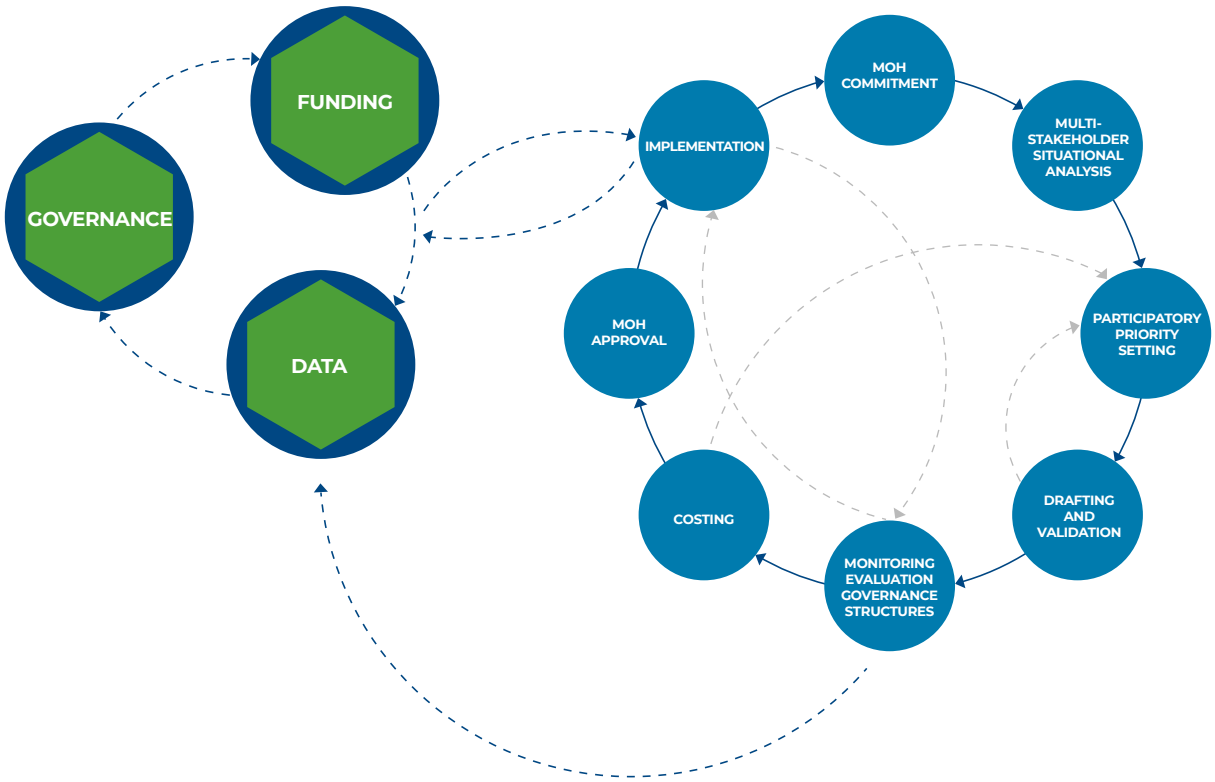
3.1.2 WHO support

WHO brings technical expertise to strategic planning processes through country and regional offices and central headquarters. WHO can work with WHO collaborating centres and non-state actors in official relations with WHO to assist with the surgical health system strengthening process, by working within the organization through the World Health Assembly and Executive Board, governing bodies and the permanent missions of the United Nations Office at Geneva. They can play an advisory role for priority setting and resource allocation, provide technical assistance and use their political influence to convene meetings and request assistance from other key bodies, such as the African Union or the South African Development Community. Regional offices can convene regional committee meetings for ministers of health, which may include statutory endorsements that serve as a mandate for countries to tackle specific health issues. WHO regional offices also work in international advocacy and they develop technical guidelines and documentation, all of which can be leveraged to advance the surgical strengthening process. At the national level, WHO can provide technical support, including evidence generation, analysis, costing and monitoring and evaluation. They can also play a convening role, helping to engage all major stakeholders including health ministries, civil society, programmes and partners. Additionally, bringing country and regional offices on board in the strategic planning process and working closely with ministries of health may help to prioritize SOA care within the broader WHO international agenda. Planners are advised to contact WHO country, regional and headquarter offices at the outset of the NSOAP process. A template letter to request WHO assistance is available from the Program in Global Surgery and Social Change (Harvard Medical School, Boston, MA, USA) (53).

3.2 STEPS FOR DEVELOPING AN NSOAP

Eight components are important steps in developing an NSOAP (see Fig. 3.2). Many of these steps can be carried out simultaneously in the planning process, rather than sequentially. This section provides an overview each of the eight components: ministry support and ownership; situation analysis and baseline assessment; stakeholder engagement and priority-setting; drafting and validation; monitoring and evaluation; costing and budgeting; governance; and implementation. Each component is explored in more detail in subsequent chapters.

Fig. 3.2 Steps for the development of an NSOAP



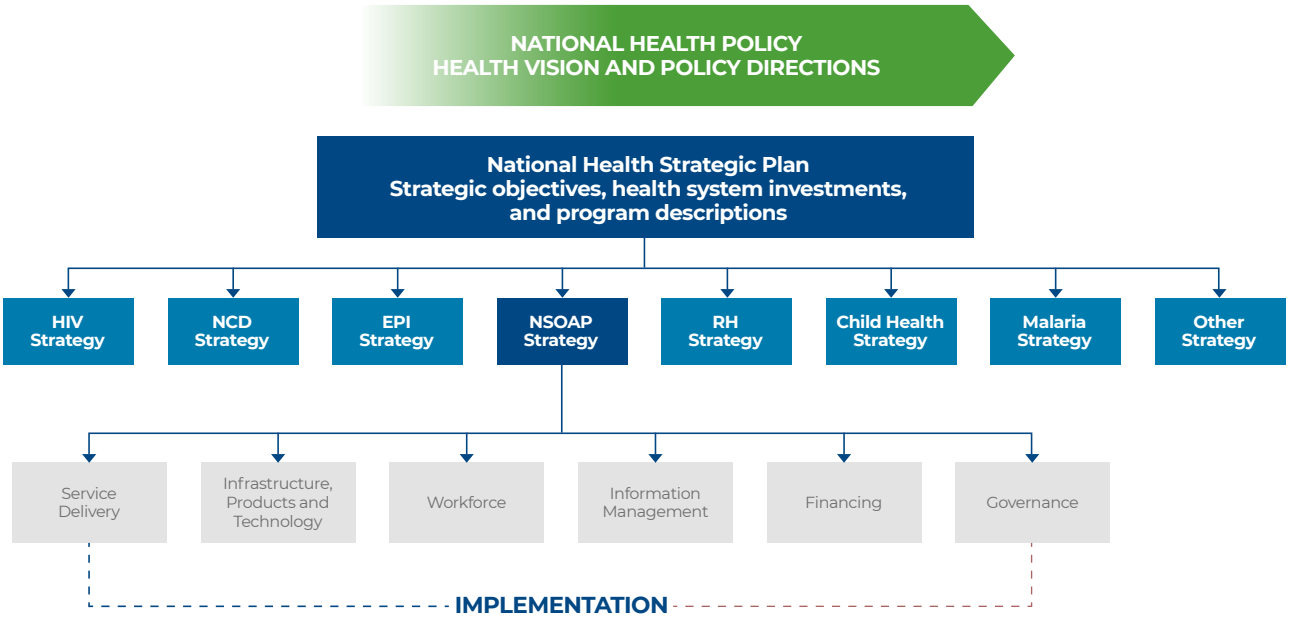
MoH: Ministry of Health

3.2.1 Ministry support and ownership

Achieving support from the MoH is the first – and arguably most important – step in successfully completing an NSOAP. Buy-in, support and leadership from the MoH are critical for increasing the likelihood that the NSOAP is integrated into the national health strategic plan (NHSP) and that the NSOAP will ultimately be implemented.

The MoH will have an understanding of the country's health priorities, the current health care landscape, financial and resource capacities and the bandwidth for implementation. Ministries also lead policy development and drafting and have the most comprehensive knowledge of current programmes and priorities that can help to avoid fragmentation and duplication. It is helpful to identify early in the process where the NSOAP will be situated within the MoH – for example, within RMNCH, NCDs, Health Care Organization, Clinical Services, Hospital Medicine, quality or other directorates. Strategically, this can help to establish continuity of leadership, governance and accountability for the NSOAP within the MoH, especially during periods of government turnover. Fig. 3.3 illustrates the integration of the NSOAP into national health policy.

Fig. 3.3 Integration of NSOAPs into national health policy



EPI: epidemiological; NCD: noncommunicable disease; NSOAP: National Surgical, Obstetric and Anaesthesia Plan; RH: reproductive health

3.2.2 Situation analysis and baseline assessment

Situation analysis and baseline assessment are important tools for developing evidence-based policy. Conducting a thorough evaluation of a country's surgical system helps to define the baseline state and identify major gaps in care. This can be undertaken using a range of different methods, including on-the-ground hospital assessments, literature reviews and analysis of established countrywide data. The six surgical indicators recommended by LCoGS and incorporated in the 2015 and 2018 WHO Core 100 Health Indicators can serve as a good minimum starting point. Chapter 4 provides more detail about this step, along with several tools to assist in the process of situation analysis and baseline assessment.

3.2.3 Stakeholder engagement and priority-setting

The final NSOAP should aim to represent the views and expertise of diverse stakeholders, so it is helpful to convene a broad group of stakeholders in the planning process, including clinical providers, professional and civil societies, academic institutions, funders and implementers. NSOAPs address the entire surgical system, which can be divided into six major domains to be addressed by different committees of stakeholders: infrastructure, workforce, service delivery, information management, financing and governance. Adopting a systematic approach to addressing each domain can help to ensure that the plan is complete. Such an approach might involve first discussing baseline assessments, followed by identifying challenges and prioritizing proposed solutions, setting priorities and targets and then proposing a monitoring and evaluation plan. Specific discussion points pertinent to each of these domains have been created to help guide these committee discussions (detailed in Chapter 5).

3.2.4 Drafting and validation

The next step is to draft a plan that compiles and prioritizes the content from the committees' discussions. The drafting process should be adapted to the local context and aligned with the country's norms and NHSP. Typically, this process includes identifying gaps and challenges from the baseline situation analysis, the goals to be achieved by the NSOAP and the proposed solutions and activities for each of these goals. These solutions can then be prioritized to ensure that the plan is attainable. Major stakeholder groups can then provide feedback on the draft and the plan can be iterated until consensus is reached.

3.2.5 Monitoring and evaluation

Monitoring and evaluation (M&E) play a crucial role in demonstrating an NSOAP's progress, improvement and cost–effectiveness, as well as highlighting activities or initiatives that are lagging and may require additional support and attention. More guidance regarding the M&E component is provided in Chapter 7.

3.2.6 Costing and budgeting

The steps involved in costing an NSOAP include assembly of available costing information, defining the objects and quantities required, and finally determining the base cost of each object and then attributing cost to the quantity of objects. This provides an estimated cost for implementation of the plan and facilitates informed discussion with direct input from the ministry of finance (MoF) about the appropriate budgeting for NSOAP implementation. A strategic costed plan may also serve to attract appropriate donors and frame discussions with funding bodies and implementation partners, as well as creating more advocacy. Chapter 8 provides more detail on costing NSOAPs.

3.2.7 Governance

The implementation and governance of the NSOAP are important to consider throughout the planning process. Good governance is based on understanding the organizational structure and mechanisms needed to achieve the objectives laid out in the NSOAP, assigning roles and responsibilities to stakeholders and establishing accountability. To ensure alignment, it will be useful to frame the governance of the NSOAP within the country's existing governance strategies for the NHSP.

3.2.8 Implementation

Given the breadth and complexity of an NSOAP, dedicating full-time staff members to NSOAP design and implementation is ideal (detailed in Chapter 9). Establishing accountability for implementing and evaluating the NSOAP can be facilitated by creating a clear chain of responsibility from the facility level, through the district and regional levels, to the MoH. Ensuring that responsible actors at each of those levels have access to the necessary M&E data can help to guide evidence-based decision-making. Implementation science methodology can be used to implement evidence-based activities and to demonstrate what is working and what is not working (and why).

3.3 DISSEMINATION

As more countries successfully create NSOAPs, the plans should be shared at the national and international levels. Within a country, it is important to disseminate the completed NSOAP within communities, academic medical institutions and the public and private health sectors. This contributes to common understanding and unified execution of the strategic framework set forth by the NSOAP for surgical system strengthening. At the international level, these NSOAPs and leaders in the planning process can help to guide other countries and to spur conversation on common barriers and possible solutions.

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CHAPTER **4**

Situation analysis and baselining

Little is known about the unmet need of surgical care and the capacity to deliver surgical services across much of the world. In developing an NSOAP, conducting a situational analysis to establish a baseline are key initial steps that provide a framework for setting priorities and creating initiatives. The WHO defines a health-specific situation analysis as "an assessment of the current health situation … [that] is fundamental to designing and updating national policies, strategies and plans" (54). By integrating a micro and macro analytical approach, situation analyses provide a basis for an integrated appraisal of health dynamics and their impacts on poverty, inequality and development. The process of situation analysis is analytical, relevant, comprehensive and inherently participatory and inclusive of all relevant stakeholders. Doing so promotes national capacity-building and recognizes national ownership and leadership in the development of context specific evidence for decision making. More efficient evidence-based decision making and policy formulation relies on increased capacity for data generation and utilization. The knowledge generated through the process will provide stakeholders with the factual knowledge needed to integrate surgical systems into policymaking.

4.1 DATA IN GLOBAL SURGERY

As essential SOA care has come to the forefront of the global health agenda, the importance of global surgery indicators and standardized data collection has been highlighted. The World Health Assembly resolution WHA68.15 recognizes and advocates that essential and emergency surgical care become a part of universal health care with a particular emphasis on surgical delivery at the district hospital. Further, the resolution called upon the WHO's Director-General to:

- Establish mechanisms to collect emergency and essential surgical and anaesthesia case log data
- Devise relevant, meaningful and reliable measures of access to and safety of surgical and anaesthesia care
- Collect, assess and report related cost data on the delivery of emergency and essential surgical care

In 2017, Member States further approved the World Health Assembly's decision WHA70.22, calling upon WHO's Director-General to report every two years on progress towards SDG targets related to health, including the target of Strengthening Emergency and Essential Surgical Care and Anaesthesia (detailed in resolution WHA68.15). The WHO African Group, representing 54 Member States, further called for the development of a global plan of action to support implementation of this resolution.

In March 2018, more than 120 signatories of the report Global Surgery and Anaesthesia Statistics committed themselves to (55):

- Support the establishment of a working group of experts on global surgery and anaesthesia statistics, with participants drawn from national statistical authorities, ministers, health facilities, health service providers, professional societies, national and international NGOs, academia, international organizations and the research community
- Organize the first meeting among the working group of experts on global surgery and anaesthesia statistics in 2018
- Draft preliminary recommendations on global surgery and anaesthesia statistics as well as a global surgery statistics manual (both tentatively set for issuance in 2019)
- Present draft recommendations and manual to the United Nations Statistical Commission in 2019

A working group has since been established and organized the first expert group meeting in Utstein, Norway in June 2019 to draft recommendations on global surgery and anaesthesia statistics.

4.2 WHY CONDUCT A SITUATION ANALYSIS?

A situation analysis provides a snapshot of the strengths and weaknesses of a country's surgical system. Performing a situation analysis is important for several key reasons:

- It provides a base of information, data and evidence on the current state of surgical healthcare in a country/region/district.
- It gives a voice and a platform to health sector stakeholders, including the population, for awareness raising and engagement for improvement
- It helps to establish consensus on the status of surgery in the country and provides an evidence base for systematic improvements.
- It allows for an evidence-informed response to actual health system and population needs.
- It serves as a baseline for Monitoring and Evaluation (M&E), it increases accountability and it improves transparency.
- Pre-existing data are often scarce regarding the provision of quality, safe and affordable surgical health services; a thorough situation analysis can address this data void.

The situational analysis provides a foundation for priority-setting because it facilitates an evidence-informed response to the actual healthcare needs of the health system and the population. It is also an important platform for giving a voice to stakeholders, for obtaining buy-in and for ensuring mutual accountability. Furthermore, in the context of sparse existing data and information, a situation analysis can serve as a baseline against which future data can be compared.

4.3 HOW TO CONDUCT A SITUATION ANALYSIS

The WHO, LMICs and some Non-State Actors (academic institutions like the Harvard PGSSC) have developed several tools that could be used to conduct a Baseline Assessment of Surgical healthcare services. A situation analysis is usually carried out in four steps:

- Defining what information and data are needed
- Reviewing existing information and data
- Performing a comprehensive situation assessment
- Conducting a strengths, weaknesses, opportunities and threats (SWOT) analysis

4.3.1 Define what information is needed

Before starting a situation analysis, it is useful to define the information – quantitative and qualitative – that is needed, to identify why it is needed, and to weigh the costs and benefits of obtaining it. The situation analysis aims to assess the current provisions for surgical healthcare, to quantify existing surgical needs and demands within the population and to assess how these are likely to change with time. The discussion framework described in Chapter 5 can be a helpful resource for defining the information that is needed and setting priorities. A preliminary list of data that may be useful to assemble ahead of priority-setting is provided in Box 4.1.

BOX 4.1

PRELIMINARY LIST OF DATA FOR PRIORITY-SETTING

The following are lists of baseline data to assess, if already available within the country's MoH or other sources. It is useful to assemble the data as early as possible in the NSOAP process. Disparities within regions must also be described and accounted for.

Health system data include:

- Information about all hospitals providing SOA healthcare, including type of hospital and location coordinates;
- Information about referral pathways between different levels of the hospital system;
- Existing relevant policies and initiatives, including accompanying data;
- List of non-state actors involved in SOA care; and
- Any other relevant data or databases.

Infrastructure data include:

- Information about electricity, water, imaging equipment (X-ray, ultrasound, CT and MRI) and available operating theatre equipment and supplies including anaesthesia machines, number of hospital beds and beds for surgery
- Information about supplies, including intra-operative supplies such as sterile gloves and the availability of oxygen and laboratory facilities;
- Information about the availability of blood products
- Information about the supply chain and list of essential medications; and
- Available information management strategies (medical records, billing systems, etc)

Workforce data include:

- Information about the skill-set and number of human resources, including surgical and hospital personnel, general surgeons, orthopaedic surgeons, urologists, otolaryngologists (ear, nose and throat surgeons), neurosurgeons, plastic surgeons, ophthalmologists, dental surgeons, obstetricians, anaesthesiologists, nurse anaesthetists, anaesthetic officers, trained nurses, medical officers, assistant medical officers and clinical officers;
- Doctors working in the public sector, private sector, civil society organizations or nongovernmental organizations (NGOs);
- Staff at each health facility;
- Graduation rate, retirement rate, attrition and information on which specialists are leaving the country;
- List of training institutions for medical, nursing and allied health professionals (including class sizes and expected numbers of graduates per year).

Service delivery and capacity data include:

- Availability of bellwether surgical procedures (emergency caesarean section, laparotomy and treatment of open fractures);
- Number and type of other procedures provided by facilities (surgical volume); and
- Quality and safety of procedures, including postoperative in-hospital deaths and any checklists being utilized (such as WHO checklist); and
- Peri-operative mortality rate (POMR)

Data on financing and costs include:

- Annual hospital budgets and budget allocation to surgery;
- Current procedures covered under national insurance schemes;
- Average cost for surgical procedures and supplies (caesarean section, laparotomy and fracture repair);
- Out-of-pocket costs, cost-sharing for surgery and supplies.

4.3.2 Review existing information

A thorough review of existing available data can help to provide some of the data for priority-setting, and also avoids duplicating existing information. Rich data sources include, but are not limited to:

- National population and housing censuses
- National and provincial health facility assessments
- Nationwide sample surveys, such as:
  - Service Availability and Readiness Assessment (SARA)
  - Demographic and Health Survey (DHS)
  - Service Provision Assessment (SPA)
  - Personnel, Infrastructure, Procedure, Equipment, and Supplies
  - Living Standards Measurement Study (LSMS)
- Performance reports (governmental and non governmental)
- National health-sector strategic plans
- Health-sector management and information system (HMIS) and other administrative sources
- Published literature
- Programmatic and policy reporting

Actively engaging multiple stakeholders can help to capture and coordinate all relevant data points, because many of those stakeholders may have useful perspectives and additional information to build the evidence base.

4.3.3 Comprehensive situation assessment

In many settings, existing available information about the surgical health sector remains insufficient. To aid in data collection, the Program in Global Surgery and Social Change at Harvard Medical School (Boston, MA, USA) have developed a Surgical Assessment Tool (SAT) with qualitative and quantitative components (53). This mixed-methods tool is designed to collect information through both facility and service-delivery assessments. It can be deployed on a regional or national scale and adapted to suit each context. The quantitative portion of the assessment involves a combination of hospital walk-throughs, retrospective reviews of operative logbooks and interviews with hospital leaders and service providers.

The SAT broadly assesses five of the six domains of the surgical health system: infrastructure, service delivery, workforce, information management, financing and governance. The qualitative portion of the assessment comprises of in-person semi-structured interviews with key stakeholders – for example, hospital directors and administrators, surgeons, obstetricians, anaesthesia providers and principal nursing officers. The overarching aim is to gain a better understanding of the entire surgical system in order to identify its strengths and shortfalls. Other tools, such as those piloted by the Global Initiative for Emergency and Essential Care, are widely available. Existing tools can be adapted and expanded to reflect context-specific priority areas. For example, additional questions can be added to the SAT to capture information about children's surgery, neurosurgery, or congenital heart disease as other priority areas.

The SAT was used to build the surgery module of WHO's Harmonized Health Facilities Assessment (HHFA), which is a soon-to-be-released digital platform to streamline all existing facility assessment health data and is expected to reduce the need for paper-based surveys. This module will have built-in submodules for anaesthesia and paediatric surgery, with submodules for other surgical subspecialties to be added over time. Each module and submodule will have appropriate links to other areas of the entire HHFA: for instance, anaesthesia will be linked to the essential medicines module and paediatric surgery linked to the children's health module. This systematic approach aims to avoid redundancy in data collection and allow for streamlined updates and additions. Anonymized data will be available on WHO's website.

DHS is the most comprehensive population survey worldwide, administered to more than 320 households and facilities in 90 countries of Africa, Asia, Latin America/Caribbean and Eastern Europe. The 2018 Zambia Demographic and Health Survey (ZDHS) implemented by the Zambia Statistics Agency (ZamStats) in collaboration with the Ministry of Health was the first national DHS to integrate five surgical questions in their DHS (56). Zambia was the first country to include questions on surgical need, care and barriers to care. In its 2018 Demographic and Health Survey (Box 4.2).

Partnerships are important in collecting data for the situation analysis. Involving critical stakeholders can help ensure a comprehensive evaluation, access to facilities and applicability and accessibility of results at the country level. However, situation analysis is a resource- and time-intensive process. Directly measuring surgical metrics through hospital site visits requires large amounts of planning and communication, adequate time to travel and conduct the assessment, and the financial and personnel resources necessary to support these activities. In settings where on-the-ground facility assessments are not feasible, situation analysis can be conducted through a remote survey of facility administrators and directors by email, phone or post. This strategy is less resource intensive, but it may compromise data completeness and validity. Table 4.1 provides an overview of the advantages and disadvantages of different strategies for situation assessment. Tools and guides for performing and analysing the results of these assessments are available to guide the process (53).

BOX 4.2

CASE EXAMPLE: ZAMBIA DHS SURVEY SURGERY PILOT PROJECT QUESTIONS

- Have you ever undergone a surgical operation in the past 5 years?
- What type of operation(s) were they? (Name all that apply)
- In the last 5 years has a doctor or another healthcare worker told you that you might need (another) operation?
- Were you able to access it?
- Why did you not access it? (Record all mentioned)

Table 4.1 Situation assessment strategies

Strategy	Advantages	Disadvantages
Review of existing literature and data	· Strategy is low cost · Strategy can cover wide breadth of topics · Strategy is likely to be comprehensive in setting of recent systematic facility assessment	· Strategy may have variable success based on amount of existing data which is often limited and/or not generalizable · Data points often are not validated · Collating information from multiple sources is challenging
Mail, phone or electronic survey	· Strategy is rapid and low cost	· Data may be incomplete based on poor return rate · Data points often are not validated · There may be bias in returned data · Data quality is potentially poor
On-the-ground assessment	· Strategy is efficient when paired with existing scheduled facility assessments · Data are robust and validated · Quantitative and qualitative data can be collected · Sampling for efficiency is possible	· Strategy is highly resource intensive · Capacity for quantitative and qualitative analysis of results is required · Qualitative analysis can be time consuming
Household surveys	· Strategy provides population-level data · Data may be more representative of the entire country · Surgery data collection can be added to large existing efforts, such as Demographic and Health Surveys	· Strategy is expensive and time consuming. · Surveys may have limited number of surgery specific questions

4.3.4 Conduct a SWOT analysis

As part of the situation analysis, a SWOT analysis is a useful analytic method for exploring existing internal capabilities (strengths and weakness) and potential extrinsic factors (opportunities and threats). Conducting such an analysis requires stakeholders to meet and discuss these elements of their health care system as it pertains to the delivery of SOA healthcare. Table 4.2 is an example of a SWOT analysis for NSOAP service delivery in Zambia.

Table 4.2 Example SWOT analysis of NSOAP service delivery in Zambia

Strengths	Weaknesses	Opportunities	Threats
Level 1 hospitals are available in most districts with plans for full coverage	Not all level 1 hospitals are capable of providing essential and emergency surgical care	Resolution WHA68.15, sponsored by Zambia, on emergency and essential surgery supports its role in UHC	Resolution may not be adapted into domestic practice if awareness remains low
Most provinces have level 2 facilities and plans are in place to upgrade some level 2 hospitals to level 3 hospitals and level 3 hospitals to teaching hospitals	Plans for service upgrades have not translated to the ability to provide elective and referred SOA services	Increased demand among the population for SOA care	Existing resources are not sufficient to meet demands. There is also a need to change the staffing establishment to meet facility demands
Individual level 3 hospitals have formulated plans to expand services and introduce new aspects of SOA healthcare with support from the country's MoH	Poor coordination among separate plans for expansion have resulted in incomplete translation to service delivery	Potential cost-savings from domestic treatment of patients as opposed to international referrals	Significant start-up costs are required to initiate and coordinate these services domestically

MoH: Ministry of Health; SOA: surgical, obstetric and anaesthesia; UHC: universal health care

4.4 CORE SURGICAL INDICATORS

Establishing a baseline is essential for measuring the future impact of policy and programmatic interventions. In 2015, LCoGS convened to assemble evidence on the state of surgical care worldwide and to develop strategies for improving access and quality (1). The Commission recommended that all countries collect six core surgical indicators as measures of the strength of their surgical system (see Table 4.3). These six indicators measure three domains of surgical care: preparedness for delivering surgical services, volume and outcomes of service, and financial risk. WHO included all six indicators in their 100 Core Health Indicators (2015 and 2018) and the World Bank incorporated four of the indicators as part of the World Development Indicators (WDIs) (2016) (see Box 4.3). Countries are urged to collect and analyse information on all six indicators to allow assessment of the current state of surgical care and to allow for comparison against international targets. Such metrics can be used as not only a component of the baseline situation analysis, but also for ongoing monitoring and evaluation.

Table 4.3 LCoGS six core surgical indicators

Indicator (domain)	Definition	Target by 2030
Access to timely essential surgery (preparedness)	Proportion of the population that can access, within two hours, a facility that can perform caesarean delivery, laparotomy and treatment of open fracture (the bellwether procedures)	80% coverage of essential surgical and anaesthesia services per country
Specialist surgical workforce density (preparedness)	Number of specialist SOA physicians who are working per 100 000 population	100% of countries with at least 20 SOA physicians per 100 000 population
Surgical volume (service delivery)	Procedures done in an operating theatre per 100 000 population per year	100% of countries tracking surgical volume; 5000 procedures per 100 000 population
Perioperative mortality rate (service delivery)	All-cause death rate prior to discharge among patients who have undergone a procedure in an operating theatre, divided by the total number of procedures, presented as a percentage	100% of countries tracking perioperative mortality
Protection against impoverishing expenditure (financial risk)	Proportion of households protected against impoverishment (being pushed into poverty or being pushed further into poverty) from direct out-of-pocket payments for surgical and anaesthesia care	100% protection against impoverishment from out-of-pocket payments for surgical and anaesthesia care
Protection against catastrophic expenditure (financial risk)	Proportion of households protected against catastrophic expenditure from direct out-of-pocket payments for surgical and anaesthesia care (direct out-of-pocket payments of greater than 40% of household income net of subsistence needs)	100% protection against catastrophic expenditure from out-of-pocket payments for surgical and anaesthesia care

SOA: surgical, obstetric and anaesthesia.
Source: adapted from Meara et al. (1).

BOX 4.3

WORLD BANK AND WORLD DEVELOPMENT INDICATORS (WDI) RELATING TO SURGERY

The World Bank plays a central role in country-level data management. Their influential annual WDI publications are compiled from officially recognized international sources covering the most current and accurate global development data available and provide national, regional and global estimates. Data collection requires developing in-country contacts, developing an online systematic process for data management, training teams of associates to manage relationships and data, and reporting clean summary data to the World Bank. Data are evaluated for quality, sources and definitions used, and are subject to critical appraisal over time. This requires developing mechanisms to review and improve indicators alongside other global health indicators currently in use, such as the SDG indicators.

Four global surgery indicators are now included in the WDIs as the result of collaboration that began in 2015 (57,58).

Number of surgical procedurers (per 100,000 population)

Specialist surgical workforce (per 100,000 population)

Risk of catastrophic expenditure for surgical care (% of people at risk)

Risk of impoverrishing expenditure for surgical care (% of people at risk)

In addition to collecting data on national indicators, the NSOAP process includes the development of a comprehensive M&E package (see Chapter 8). Data gathered during baselining can serve as advocacy tools, metrics for M&E and benchmarks for comparing future data points. Box 4.3 provides an overview of collaborative data collection on global surgery indicators, based on experience in the Asia-Pacific region.

BOX 4.4

COLLABORATIVE DATA COLLECTION ON GLOBAL SURGERY INDICATORS IN THE ASIA-PACIFIC REGION

Through the Bangkok Declaration of 2015, countries of the Asia-Pacific region made a commitment to promote the key messages and indicators of LCoGS (59). Later that year, at the 4th Royal Australasian College of Surgeons (RACS) Global Health Symposium, 14 countries resolved to come together across the Asia-Pacific region to collect four of the six global surgery indicators (60). To collect the indicators, RACS established a working group that developed a pre-collection feasibility survey, created an online chat group and held regular teleconferences over a six-month period from October 2015 to April 2016. National representatives were encouraged to work with their national ministries of health; data were only included once appropriate national permission was obtained. Of the 14 countries, 13 obtained the data on four indicators, each using a context-appropriate methodology (60). The data are being leveraged in three ways: to benchmark surgical capacity across the region; to serve as a baseline for measuring the success of regional efforts to improve surgical capacity and quality; and for advocacy to promote surgery on national health agendas. However, the collaborative effort of RACS reflects the difficulty of obtaining even a relatively sparse dataset, because of a lack of systematic prospective data reporting and the absence of a national mandate to collect the data. The experience underscores the need to integrate data collection mechanisms – individualized and appropriate for each context – into national systems to assist in national surgical planning. Ultimately, these data highlight the urgent need to improve the surgical system, which remains invisible without data. Recently, the Council of Health Ministers of the Pacific have approved adoption and reporting of the indicators and are working towards developing a regional NSOAP.

YOUR Notes

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Notes

CHAPTER **5**

Stakeholder engagement and priority-setting

The content and quality of an NSOAP is ultimately in the hands of the stakeholders involved in the process, so careful identification and early involvement is crucial. To ensure that the NSOAP's content is comprehensive and reflects the values and experiences across the breadth of the health sector, it is helpful to engage an inclusive cross-section of stakeholder groups: government, professional societies, local academic institutions, civil society organizations including patient and community representatives, and industry and implementation partners. Furthermore, identifying the ambitions and struggles of each stakeholder group, and listening closely to their personal experiences and expertise, will serve to inform and strengthen the NSOAP.

> *"The development of resilient surgical systems will need commitment and engagement from various stakeholders at the national and international levels, and from public, private, and charitable sectors. A national strategic plan that specifically addresses surgery is essential for the proper planning of care delivery, education, and research. This plan should be country- and context-specific, developed and owned by all stakeholders, and rest within a broader strategy of improvement of national health systems (1)."*

A consideration before engaging stakeholders at all levels, consider the local political priority for surgery, and how this priority may be echoed and elevated with the help of these groups. Multiple policy analyses have concluded that prioritization of global surgery in public policy will require the formation of an organized and consolidated group that can present shared interests and advocate at the highest levels (50). It may be a helpful place to start to identify broad strengths and obstacles within the context that initiating an NSOAP, to create a strategy even before involving other stakeholders.

5.1 WHY DO WE NEED A MULTI-STAKEHOLDER APPROACH?

An NSOAP encompasses a broad array of objectives so adopting a multi-stakeholder approach is strongly advised. A diverse stakeholder group allows each party to bring their unique lived experience of the system, area of specialization, geographical region, and level of engagement in the health care system to the table. A multi-stakeholder approach allows for careful consideration of both top-down and bottom-up priorities and concerns.

Mobilizing multiple stakeholders can help to garner support for the plan at multiple levels, and to identify any opposition or obstacles early in the process. Engagement provides a transparent forum for stakeholders to address their reservations openly and to come to joint solutions in the best interest of the overarching goals of the plan (61). Engaging stakeholders who ultimately will be the implementation partners of the NSOAP can instill ownership and a sense of duty to implement the plan that they have helped to shape.

5.2 STAKEHOLDER GROUPS

Table 5.1 highlights the major stakeholder groups that may contribute meaningfully to the NSOAP process. The column labelled "Expertise/Contributions" offers suggestions about which topics to engage each group on. The inclusion of these stakeholder groups in the table is intended to serve as general guidance for your consideration and may not be relevant in every context.

Table 5.1 Major stakeholder groups to consider involving in the planning process

Stakeholder	Examples	Expertise/Contributions
Local government, national government and interested elected leaders	· National MoH[1] · Finance, education and infrastructure sectors · Policy officials · Other government representatives	· Bring political skill and political will to the process · Drive the NSOAP process · Ensure process is compliant and aligned with resources · Coordinate existing efforts · Develop the governance structures to ensure plan is implemented · Ensure surgical care is integrated into national health plans
Academic and research institutions	· Academic deans · Teaching institution faculty · Public health, health systems, and global surgery researchers · Centres for global surgery/obstetrics anaesthesia	· Conduct situational analysis of current training capacity · Set realistic goals for the growth of training programs · Advocate for mentorship, research direction, and research opportunities
Professional societies	· Surgery society · Anaesthesia society · Obstetric society · Nursing association	· Represent the collective interests of the SOA providers, their daily experiences and visions for the field of surgical delivery · Advise on licensing legalities · Provide technical clinical expertise
Clinical providers	· Representative sample of clinicians from across subspecialties · Non-physician SOA providers · Mixed urban and rural (district) providers · Regional representation	· Provide view from the front-line of care · Provide technical clinical expertise · Often provide lens of hospital CEO and administration
Ancillary surgical staff	· Operating room nurses · Nurse anaesthetists · Lab technicians · Physical therapists · Occupational therapists · Biomedical engineers	· Provide front-line view of multidisciplinary care · Ensure daily healthcare workflow and ecosystem are taken into account
WHO	· Emergency and Essential Surgical Care Programme · WHO regional office · WHO country office	· Provide technical expertise in planning and costing · Serve as key partner with MoH · Potentially offer significant political influence for implementation · Assist in identifying other stakeholders
NGOs, not-for-profit sector, implementation partners	· SOA implementers outside the public sector · Public health initiatives · Implementers	· Offer experience in care delivery · Develop innovative care models · Provide knowledge of available funding mechanisms · Facilitate implementation
Patients, health service users and civil societies	· Patients/users · Patient lobbyists · Parents · Advocates · Community groups	· Represent community interests and priorities · Advocate for quality-of-care priorities · Participate in surveys about utilization and spending to inform planning
Trainees and organized trainee groups	· SOA Fellows and residents · Medical and nursing students · National and international organized student groups for surgery/OB anaesthesia advocacy	· Represent the future of the SOA fields, early engagement · Provide knowledge of curriculum, training and opportunities for improvement · Assist in incentivization
Private sector	· Private health SOA providers · Private healthcare administrators · Private healthcare patients/users	· Coordinate with private system · Inform/develop innovative care models
Funding bodies	· Multilateral aid organizations · Foundations and private philanthropy funding · Aid agencies and donors · National and provincial MoF	· Identify realistic funding opportunities · Align NSOAP with funding priorities · Contribute employee expertise to budget consulting
Industry representatives	· Medical and surgical devices industry · Infrastructure industry	· Contribute their products and services · Develop context-appropriate products · Provide clinical and leadership training · Offer funding and sponsorship · Provide leadership and supply chain expertise
UN Funds and Programs	· UNDP · UNFPA · UNICEF	· Advise about wider regulatory framework · Endorse and progress international advocacy efforts

MoH: ministry of health; MoF: ministry of finance; NGO: nongovernmental organization; NSOAP: National Surgical, Obstetric and Anaesthesia Plan; SOA: surgical, obstetric and anaesthesia

[1] MoH stakeholders may be drawn from the areas of NCD, maternal and child health, training, clinical care, quality, policy and planning, procurement and pharmacy.

5.3 STAKEHOLDER IDENTIFICATION

The plan depends on the "political skill as well as the political will" of the government to engage in the NSOAP planning process (62). Ideally, the government serves as the convener and coordinator of other stakeholder groups and makes the ultimate decisions regarding which stakeholder groups are involved in the process. A stakeholder analysis can be utilized to better understand the best approach for engaging with each of the stakeholder groups and addressing any potential opposition to the plan. An additional resource is the detailed review of stakeholder analysis methodologies performed by Brugha and Varvasovszky (63). "The level of stakeholder involvement points back to the steering capacity of the MoH and the core team (i.e., not just ministry of health, but key planning stakeholders as well) to effectively lead, coordinate, and motivate the right people to give their input on the one hand, and assist implementation on the other" (61).

A range of methods can be used to facilitate the identification of stakeholders. For example, the ministry directive approach and the snowball method have both been used effectively in the NSOAP process. In a ministry directive approach, the MoH selects and convenes a set of key individuals and groups with whom the ministry is already familiar. Although this method is efficient, it may restrict engagement to those stakeholders who are already known to the ministry and already have existing influence. In the snowball method, initial contacts and representatives identify new stakeholders or contacts who they feel would be relevant to the NSOAP. This process is highly participatory and can identify groups that have been excluded previously; however, this method can be lengthy and time consuming. A combination of techniques for identifying stakeholders is often the most effective approach.

5.4 INITIAL ENGAGEMENT AND PRIORITY-SETTING

Once the relevant stakeholders have been identified, the next step is ensuring their engagement. The NSOAP lead team, ideally assembled earlier in the NSOAP process, can play a pivotal role in driving and supporting stakeholder engagement (see Chapter 3 for more information about the NSOAP lead team). Before initial engagement with the broader group of stakeholders, the NSOAP lead team can meet to agree upon the appropriate roles, responsibilities, and expectations for each of its members.

5.4.1 Aims of engagement

Stakeholder engagement has multiple aims throughout the dynamic NSOAP process:

- To explain the NSOAP process, to discuss the timelines that have been set and to clarify stakeholders' valued contributions
- To engage in a multilateral discussion of priorities and pain points for individuals and groups that inform each step in the NSOAP development
- To review the findings from the situational analysis and baseline assessments, eliciting qualitative feedback from stakeholders that informs the quantitative results of the analysis
- To identify strategic objectives and priorities for the NSOAP (discussed further in Chapter 6)
- To foster shared ownership of the plan by all stakeholders

In practice, each stakeholder group will have different levels of involvement in the NSOAP process. Therefore, different types of engagement approaches are appropriate for different groups. For example, minimal engagement may be needed for stakeholders whose expertise pertains only to a specific domain of the plan. Other stakeholders – such as clinicians and professional societies – are integral to each of the domains of the NSOAP and warrant a high level of engagement. See Box 5.1 for a case study from the United Republic of Tanzania in stakeholder engagement.

UN Photo/JC McIlwaine

BOX 5.1

STAKEHOLDER ENGAGEMENT: CASE STUDY FROM THE UNITED REPUBLIC OF TANZANIA

The United Republic of Tanzania's NSOAP process was initiated in November 2016 and launched in March 2018. The process began with a systematic review of existing data from a wide range of sources: The United Republic of Tanzania's MoH; NGOs; grey literature; and academic literature. Upon completion of the review, a group of more than 200 diverse stakeholders were identified using the snowball approach. Stakeholders included:

- Clinicians from each zone of the country, including surgeons, anaesthesiologists, anaesthetists, obstetricians, radiologists, nurses, laboratory technicians, biomedical engineers and midwives;
- Representatives from civil societies, NGOs and patient groups; and
- Government representatives from the areas of curative and preventive services, policy and planning, human resources, training and procurement.

Stakeholders were consulted using semi-structured interviews and focus groups. Following the initial broad engagement, 80 of the most engaged participants were selected from across the stakeholder groups to take part in a two-day technical workshop. The initial workshop used discussion frameworks for priority-setting that were synthesized into a draft. The initial draft was iterated and validated by these stakeholder groups. The next step was to cost the plan and pass the final draft. The final NSOAP has been integrated into the health sector's strategic plan. It is both ambitious in scope – including more 150 individual activities – and feasible to implement, costing less than US$ 1.70 per capita per year and 3.28% of the country's current health expenditure. The plan is also inclusive, in that it directly reflects the stakeholders' priorities and is supported by strong partnerships with professional organizations.

5.4.2 How to engage

Stakeholder engagement may be carried out through focus groups, semi-structured interviews, workshops, and committees.

5.4.2.1 Focus groups

Focus groups typically involve a planned discussion with a group of stakeholders that is facilitated by a moderator, allowing for opinions to be expressed in a relaxed and open setting. Examples of stakeholders who could be engaged through focus groups include patients, operating theatre nurses, anaesthesia technicians, and student advocacy groups. Focus groups provide a good opportunity to identify individuals who may wish to be more involved in the NSOAP process. A potential pitfall is that focus groups can be dominated by more outspoken individuals, which may lead to a skewed perception of the views of the group.

5.4.2.2 Semi-structured interviews

Semi-structured interviews are best suited to get direct perspectives of individuals or small groups of two or three people. Ideally, the interviews would be carried out by unbiased data collectors and then could be collated centrally and organized for review by the NSOAP lead team. The online supplemental material provided at the end of this chapter includes guidance for semi-structured qualitative interviews, which can be tailored to each stakeholder group. These interviews can be useful for getting advice on certain elements of the plan from stakeholders who may not need to be engaged for the entire process. Individual interviews are also a good method for identifying people who may want to play a key role in driving the NSOAP process and implementing the plan.

5.4.2.3 Workshops and committees

Once appropriate stakeholders have been identified and initial engagements established, workshops or committees can provide a platform for more in-depth, systematic priority-setting. For practical purposes, it may help to divide the stakeholders into committees, each assigned to one of the NSOAP's domains (infrastructure, service delivery, workforce, information management, financing and governance) to address each systematically. When possible, each committee's membership should represent a cross-section of stakeholders.

The supplementary material for this chapter includes discussion frameworks for conducting committee meetings that have been created for each of the domains. The discussion frameworks are divided into subcategories that detail suggested systematic discussion topics pertinent to that domain (for an example in Infrastructure domain, see Fig. 5.1). For each topic, the framework proceeds through the baseline for that subcategory, as well as challenges and proposed solutions relevant to the topic. The committee can also set targets and then decide upon an M&E plan for that subcategory. The number of committee meetings required is dependent on the degree of its stakeholders' involvement and the depth of detail that the committee deems necessary. Setting and maintaining a timeline is crucial for keeping committees on task and moving the NSOAP process along. After each committee has completed their discussion framework, a compilation of the proceedings from each committee meeting should be reviewed by the NSOAP lead team. Further prioritization will likely be needed, which is discussed in the next section.

Fig. 5.1 Example of discussion framework for the infrastructure domain

INFRASTRUCTURE

Number and Distribution of Surgical Facilities

I. Background

1. What are the different levels of health facilities that exist in the country?
    a. How many facilities are there of each level in the country?
2. Which of the facilities should be capable of providing the Bellwether procedures (C-section, laparotomy, and treatment of open fracture)?
    a. What is the geographic distribution of Bellwether-capable facilities?
        i. Is this distribution deliberate, and if so how?
    b. What percent of population do you estimate can reach a Bellwether-capable facility within 2 hours?
3. Is the current number and distribution of facilities adequate?

II. Challenges & Proposed Solutions

4. What are the major barriers to developing new facilities?
5. What are previous and current initiatives to improve distribution and number of facilities?

III. Targets

6. In 5 years, what changes need to be made in regards to the number and distribution of surgical facilities?

IV. Monitoring and Evaluation

7. Key Metrics
    a. How can 2-hour access to Bellwether procedures be measured accurately?
    b. What is the frequency that access to Bellwether procedures should be measured?
8. Which body of government or organization will lead this initiative and monitor progress?

Source: NSOAP Discussion Framework created by Yihan Lin, Isabelle Citron, Kristin Sonderman and Swagoto Mukhopadhyay, Program in Global Surgery and Social Change, Department of Global Health and Social Medicine, Harvard Medical School, Boston, MA, USA (64).

5.4.3 Setting priorities

It is unlikely that all of the funds needed to implement an NSOAP will be available upon completion of the plan. At this point, the key question is: "Given current budget constraints, what should be emphasized first and what activities can be postponed?" This is another way of asking, "How should the plan's various goals be prioritized?" Discussions of priority-setting in global health tend to focus on three criteria: health impact, equity, and cost-effectiveness. Each of these criteria are explored in this section to illustrate how they can converge in health planning – rather than conflicting with each other – which holds true in plans to expand access to SOA care. The section concludes with a set of suggested activities that are likely to be high priority according to all three criteria. Health impact criteria can be used to prioritize funding for activities that have the greatest impact on the public's health by reaching a large number of people with services that significantly improve their health status. Consequently, specialized services needed only by a small portion of the population may be postponed.

Equity criteria can be used to prioritize services for people who currently have the least access, such as low-income, uninsured, and rural populations. The idea of prioritizing these populations is rooted in the principles of social justice, or the equitable distribution of resources in society, and of the preferential option for the poor in healthcare, which hold that people who have historically been deprived of services should now have a high-priority claim on new resources being made available. Both of these principles apply to the allocation of resources for surgery, which has historically not been made available to vulnerable populations, and which addresses a disease burden that afflicts people without access to safeguards, screening, and preventive medicine at higher rates.

Cost–effectiveness criteria are used to prioritize activities that have the greatest health benefit for a given investment. Activities aimed at expanding access to essential surgical activities, as described by the DCP-3 and others (see Table 5.2), are likely to be in the first tier, or highly cost–effective. As more funds become available, a second tier of activities can be undertaken. These are activities that provide a good return on investment as measured in lives saved and disability averted, but they are less cost-effective than the first set of activities. As even more money is mobilized, it may be possible to fund activities to improve access to services that are relatively costly and may be life-enhancing rather than life-saving; such activities may also focus on prolonging the lives of older populations rather than saving lives and averting major disability among relatively young populations.

Although there are scenarios in which these three criteria may diverge with respect to priority-setting, on a practical basis, they almost always converge in the context of expanding surgical services. For example, expanding access to services for the poor and other underserved populations who currently have little or no access to care is likely to be equitable, high-impact and cost-effective. Per the general principle of decreasing marginal returns on investment, expanding access is likely to make a greater difference for those who have the least access than for those who can already obtain decent care. Generally, health impact and cost–effectiveness criteria are unlikely to conflict because emphasizing high cost–effectiveness is tantamount to maximizing health impact (subject to budget constraints). Therefore, all three criteria justify assigning high priority to expanding access to essential surgery among underserved populations. In most countries, these will be rural, uninsured, and impoverished populations; these groups often overlap significantly, further amplifying this point.

Producing a rigorous set of cost–effectiveness analyses (CEAs) to fully inform NSOAP priority-setting is desirable but doing so is costly and time consuming. Although CEAs can help to rationalize the allocation of surgical resources, the development and implementation of NSOAPs should not be delayed by awaiting completion of a large set of country-specific CEAs. Much of this work has been explored in broad strokes which can serve as guideposts, including the DCP3 and the WHO Emergency and Essential Surgical Procedures. Over time, CEAs can help to refine the set of surgical services that should be considered essential and to select the optimal technology and workforce for delivering those services. This is an important area for future research.

Table 5.2 Essential surgical procedures recommended for each setting

		HEALTHCARE DELIVERY SETTING		
Priority	**Type of procedure[2]**	**Community facility and primary health centre[3]**	**First-level hospital[4]**	**Second- or third-level hospitals[5]**
Must	General surgical	· Drainage of superficial abscess · Male circumcision	· Repair of perforations (such as peptic ulcer) · Appendectomy · Bowel obstruction · Colostomy · Gallbladder disease including emergency surgery · Hernia, including incarceration · Hydrocelectomy · Relief of urinary obstruction: catheterization or suprapubic cystostomy	–
Must	Obstetric, gynaecologic and family planning	Normal delivery	· Caesarean birth · Vacuum or forceps delivery · Ectopic pregnancy · Manual vacuum aspiration and dilatation and curettage · Tubal ligation · Vasectomy · Hysterectomy for uterine rupture or intractable postpartum haemorrhage · Visual inspection with acetic acid and cryotherapy for precarious cervical lesions	Repair obstetric fistula
Must	Injury	· Resuscitation with basic life-support measures · Suturing laceration · Management of non-displaced fractures	· Resuscitation with advanced life-support measures, including surgical airway · Tube thoracostomy (chest tube) · Trauma laparotomy · Fracture reduction · Irrigation and debridement of open fractures · Placement of external fixation or traction · Escharotomy or fasciotomy · Trauma-related amputations · Skin grafting · Burr hole	–
Should	Visual impairment	–	–	· Cataract extraction and insertion of intraocular lens · Eyelid surgery for trachoma
Should	Congenital	–	–	· Repair of cleft lip and/or palate · Repair of club foot · Shunt for hydrocephalus · Repair of anorectal malformation and Hirschsprung's disease
Should	Non-trauma orthopaedic	–	· Drainage of septic arthritis · Debridement of osteomyelitis	–
Can	Dental	· Extraction · Drainage of dental abscess · Treatment of caries	–	–

[2] The column in which a procedure is listed is the lowest level of the health system in which it would usually be provided. Not included in the table are prehospital interventions, such as first aid, basic life-support procedures or advanced life-support procedures done in the prehospital setting. Health systems in different countries are structured differently, and what might be suitable at the various levels of facilities will differ. Not included in the list of essential procedures would be procedures that are more applicable at higher-level facilities: repair of vascular injury, open reduction and internal fixation, drainage of intracranial hematoma other than through burr hole or exploration of neck or chest.
[3] In this table, community facility implies primarily outpatient capabilities (as would be used to provide the elective procedures such as dental care), whereas primary health centre implies a facility with overnight beds and 24-hour staff (as would be needed for procedures such as normal delivery).
[4] First-level hospitals imply fairly well-developed surgical capabilities with doctors with surgical expertise; otherwise, many of the procedures would need to be carried out at higher-level facilities. Trauma laparotomy applicable at first-level hospitals: exploratory laparotomy for hemoperitoneum, pneumoperitoneum or bowel injury; specific procedures include splenectomy, splenic repair, packing of hepatic injury and repair of bowel perforation.
[5] Referral and specialized hospitals (which could also be considered second- and third-level hospitals) imply facilities that have advanced or subspecialized expertise for treatment of one or more surgical conditions, not usually found at lower-level facilities.
Source: Adapted from DCP-3 Volume 1 (3).

UN Photo/Kibae Park

In defining a set of high-priority activities, planners and other stakeholders should seek to identify specific expenditures that are both low cost and high impact. One method is to identify locations in the system where critical inputs are lacking. For example, well-equipped facilities staffed by trained surgeons can make little impact if the staff does not include enough anaesthesiologists or nurse anaesthetists. In this case, training and deploying anaesthesia staff may be near the top of the implementation priority list. Similarly, the range, quantity and quality of surgery provided at a facility can be severely compromised if the facility lacks essential equipment such as continuous oxygen supply, functioning suction or basic capacities such as reliable electricity. In those surgical facilities, ensuring the availability of critical inputs should be a high priority. This can catalyse more efficient use of existing resources, especially in facilities accessed by underserved populations. In such contexts, it can be helpful to focus on upgrading multi-capacity platforms – such as the surgical facilities in clinics or health centres – that share resources across surgical procedure types, rather than a narrower focus on specific surgical procedures with unique resources that are not shared.

The specific opportunities for high-impact new investments will vary between and within countries. Other potentially promising high-priority strategies include, but are not limited to:

- Paediatric surgical capacity, which is often neglected yet can have a high return in lives saved and years of disability averted;
- Training and deployment of additional operating theatre and ward nurses (cadres that are often in insufficient supply); and
- Incentive schemes that ensure that the surgical workforce is available in underserved areas.

Once priorities have been identified, the next step is drafting the plan. Chapter 6 provides guidance on drafting and validating an NSOAP.

5.5 SUPPLEMENTAL RESOURCES

Full discussion framework is available from: https://tinyurl.com/ybsk5eqo (64).

Qualitative interview tools for specific stakeholders (Hospital director, physicians, nurses) are available from: https://tinyurl.com/yb2m9lr4 (65).

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CHAPTER **6**

Drafting and validating the plan

Drafting of the NSOAP is the culmination of the steps described in previous chapters. The NSOAP drafting process aims to produce a document that details:

- Gaps and challenges identified from baseline situation analysis and stakeholder engagement
- Goals to be achieved during the span of the NSOAP
- Solutions and activities to reach those goals
- An evaluation framework to assess whether goals have been achieved

This chapter highlights key considerations and provides guidance and tools to support the process of drafting the NSOAP and generating consensus on the final plan among stakeholders.

6.1 KEY CONSIDERATIONS

There are several key considerations during the drafting process. The plan should reflect the views of the stakeholders, provide balanced perspectives and evidence and align with priorities of the government and ministry.

6.1.1 Reflect views of stakeholders

Guidance on NSOAP development emphasizes the need for plans to be developed and owned by local stakeholders, which is particularly relevant to the drafting process (1). To gain sufficient buy-in, a broad and diverse group of in-country stakeholders should be engaged throughout the drafting process. Circulating drafts of the plans to key stakeholders for feedback at various stages of the drafting process – for example, through workshops and individual discussions – can help to ensure that the contents are a consensus of the views of all relevant parties.

6.1.2 Ensure priorities are evidence-informed

While it is important that the NSOAP reflects the views of stakeholders, especially frontline providers who understand first-hand the daily challenges of providing surgical care in resource-limited facilities, it is critical that the priorities of the plan be evidence-informed. To the extent possible, priorities in the plan should be based on reliable and recent data and on programmes that have been tested and proven in similar contexts. It is the responsibility of the NSOAP drafting committee to ensure that all proposed priority interventions are evidence-based. One way to ensure evidence-based decisions are taken by stakeholders is by sharing findings of the completed situation analysis with the stakeholders prior to bringing them together for priority setting. If the stakeholders involved in priority setting are aware of the most up to-the-date data, this may help ensure that their decisions are data-driven and complemented by their on-the-ground perspectives. A skilled NSOAP committee will be needed to be able to broker decisions between potentially divergent views among stakeholders.

6.1.3 Align with priorities of the government and ministry

Given the cross-cutting nature of surgical systems, addressing systemic challenges requires a horizontal approach. Ideally, priorities set forth in the NSOAP will align closely with the current policies and plans of the country's government and its MoH – particularly the national health policy, strategy or plan – and be congruent with cross-sectoral priorities of other ministries, such as finance, education and energy. This helps to avoid duplication of efforts and to prevent contradictory policies. NSOAP writing committees are advised to conduct a thorough review of current national and regional policies to identify key priorities across sectors, to find areas of policy overlap and to plan complementary policies.

For the final NSOAP to be achievable and affordable within the specified time frame, it is important for the NSOAP writing committees and other stakeholders to delineate the scope of the plan from the outset of the process. For example, electricity and water supply are crucial for safe surgery. However, connecting all health facilities to the national electricity grid and piped water supply may be more appropriate objectives for a national health strategy than for an NSOAP, because those capacities are crucial for many other areas of the health system. Their inclusion in an NSOAP may be too overwhelming and expensive for a new and relatively modest SOA department in the MoH; further, the activities are

likely to be tackled in the plans of other sectors, such as infrastructure and energy. A more feasible activity for the NSOAP could be to advocate to appropriate departments within the MoH and other government sector for the prioritization of those capacities in the national health plan, for example, by working with the ministry of energy and ministry of water. This adds weight and urgency to the issue without pledging to resolve it within the NSOAP.

6.2 DRAFTING THE NSOAP

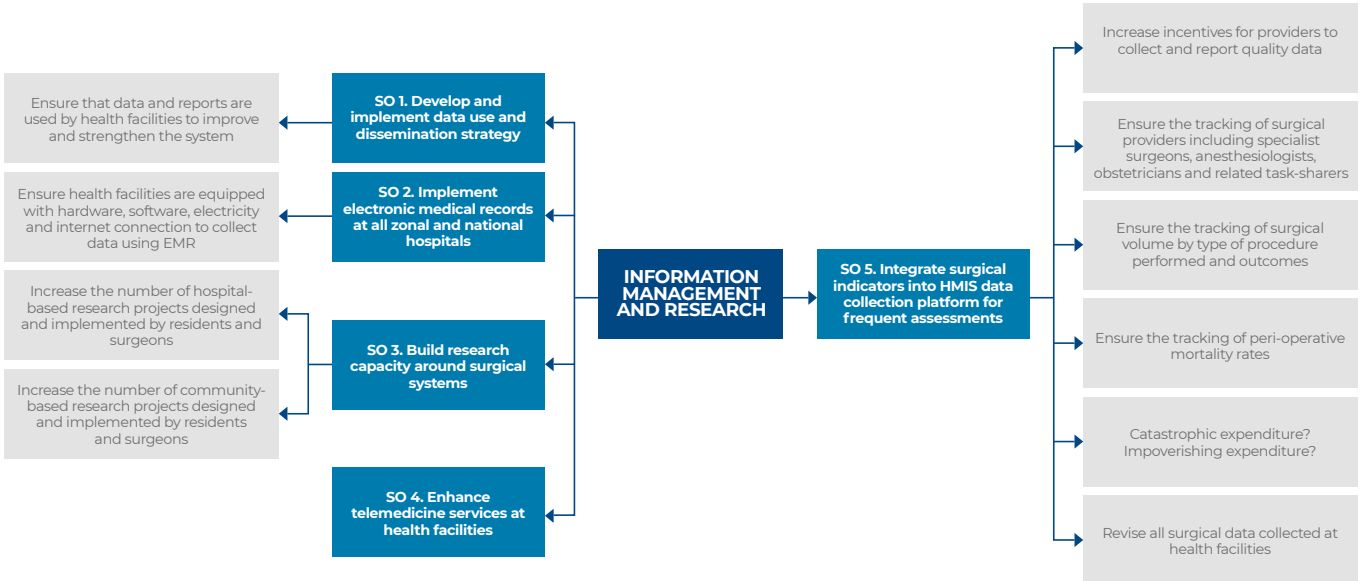
This section provides guidance for the process of drafting an NSOAP, including:

- Integrating themes and establishing consensus about priorities
- Assembling a writing team
- Drafting the plan: outlining, goal setting, identifying strategic objectives, defining expected outputs, determining activities and defining indicators
- Recommendations for writing the plan

6.2.1 Integrating themes and establishing consensus on priorities

The initial steps in drafting an NSOAP are to integrate themes that emerged during stakeholder consultation interviews, focus groups and workshops, as well as establish a consensus on priorities. It may be helpful to organize diverse stakeholder priorities into coherent strategic objectives, goals, outputs and activities. This ensures that priorities are referenced from stakeholder discussions and key areas are not omitted. One strategy commonly used for organizing ideas is mind-mapping, using a central theme from which subthemes originate. Fig. 6.1 is an example of a mind map of multiple stakeholder priorities and themes around information management. Originating from this central theme are subthemes which are the various strategic objectives of the information management domain. Each strategic objective is linked to the specific outputs to achieve that objective. Many free mind-mapping software programs are available to assist with this (66).

Fig. 6.1 Mind map of stakeholder priorities and themes around information management



HMIS: health management information system

6.2.2 Assembling a writing team

To organize stakeholders' priorities into a cohesive plan, assembling an NSOAP writing team is a useful strategy. Although the plan should reflect the views of the stakeholders, it may not be practical to have all of them at the table for the writing process. During the drafting process, it is important to remain committed to the priorities set by the stakeholders rather than generating new priorities. In an ideal scenario, the members of the writing team represent a cross-section of stakeholders including front-line clinicians (for example, specialists and nurses), patient organizations, government representatives, professional associations, private providers, faith-based providers and civil society organizations. More commonly, the first draft of the NSOAP is created by a smaller writing team, an individual stakeholder or an external consultant. The draft is then rigorously reviewed by a broader group of stakeholders who provide in-depth feedback. Involving policy writers who are fluent in the language of MoH documents can help to facilitate the incorporation of the NSOAP into the national health plan.

6.2.3 Drafting recommendations

This section provides recommendations for the drafting process related to outlining the draft, setting the goals, identifying the strategic objectives, defining expected outputs, determining activities and defining indicators.

BOX 6.1

SAMPLE OUTLINE FOR NSOAP

I. Introduction
- a. Rationale for the plan
- b. Development process

II. Guiding principles, vision and mission
- a. Guiding principles
- b. Vision
- c. Mission

III. Background
- a. Health and development progress
- b. National policies and priorities

IV. Situation analysis
- a. Service delivery
- b. Infrastructure, products and technologies
- c. Health workforce
- d. Health care financing
- e. Information and research
- f. Leadership and governance

V. Detailed goals, strategic objectives, outcomes and activities
- a. Presented in a table format with indicators, baseline and targets

VI. Monitoring and Evaluation Framework

VII. Governance framework

VIII. Cost of implementation

IX. Appendix
- a. Supporting documents, such as costing details

6.2.3.1 Outlining the draft

Although there is no universal template for developing NSOAPs, any template used should align (to the extent possible) with templates used for existing policies of the MoH. A sample outline for an NSOAP draft is provided in Box 6.1.

Key components of an NSOAP outline may include:

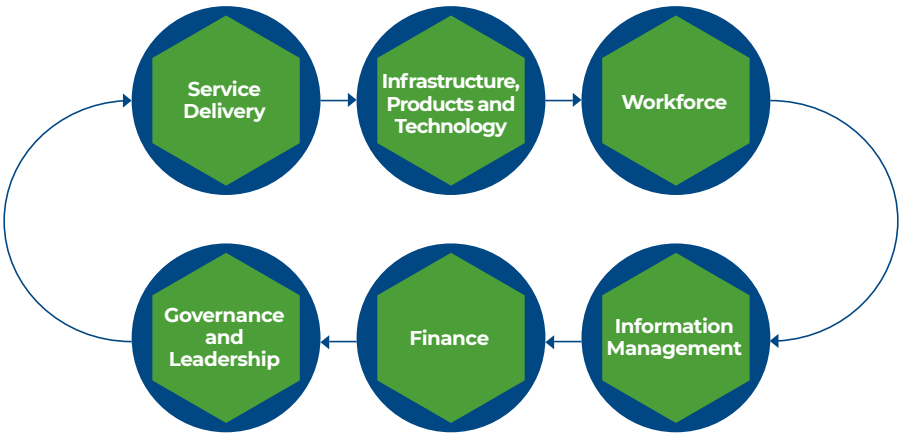
- Introduction
- Guiding principles, vision and mission
- Background
- Situation analysis
- Goals, strategic objectives, outputs and activities
- Governance framework
- Monitoring and evaluation framework
- Cost of implementation.

The introduction section typically includes the rationale for developing an NSOAP in the specific country and a discussion of the overall NSOAP development process.

The section on guiding principles, vision and mission should seek to highlight the overall purpose of the plan. The mission is usually a succinct sentence which summarizes what the plan aims to achieve, with the vision framed more broadly in terms of the potential impact of achieving the mission. The background section may include an overview of country-specific health and development indicators, as well as the country's health and development progress and its national policies and priorities. The situation analysis might be described in the next section, along with the results of any baseline assessments that were conducted. One way of presenting a situation analysis is to structure it around WHO's building blocks of health systems (67), which underpin the structure of the NSOAP (see Fig. 6.2). These domains include service delivery, health workforce, medical products and technologies, health care financing, information and research, and leadership and governance. See Chapter 4 of this manual for more information on situation analysis and baselining.

The section detailing goals, strategic objectives, outputs and activities is the most important part of the NSOAP. For each domain of the health system, it describes which priority aims will be achieved (goals and strategic objectives), how they will be achieved (outputs and activities) and when they will be achieved. It is crucial that a thorough monitoring and evaluation plan be developed as part of the NSOAP to monitor implementation progress towards achieving the goals of the NSOAP and its impact. Advice about establishing targets and measuring each strategic objective is provided in Chapter 7 of this manual. Costing an NSOAP and establishing organizational structures and governance frameworks are covered in Chapters 8 and 9, respectively.

Fig. 6.2 Organizing an NSOAP situation analysis around building blocks of health systems



6.2.3.2 Setting goals

In the context of health systems, a goal is a broad statement about what the overall system aims to accomplish (61). For example, an NSOAP goal could be to increase surgical volume nationally. A single goal often has one or more strategic objectives needed to accomplish it.

6.2.3.3 Identifying strategic objectives

An objective, as defined by WHO's Health Systems Strengthening Glossary (68), is "a statement of a desired future state, condition, or purpose, which an institution, a project, a service, or a program seeks to achieve". The essence of a strategic objective is to clearly define what the NSOAP aims to achieve. Strategic objectives are identified based on priorities determined by stakeholders and policymakers. A common approach to developing useful strategic objectives is to use the criteria defined below.

- **Specific:** what exactly will be done for whom and by whom?
- **Measurable:** is it quantifiable and how can we measure it?
- **Achievable:** can it be done in the proposed time frame with the resources and support available?
- **Relevant:** will the objective have the desired effect on the desired goal or mission of the strategic plan?
- **Time-bound:** by when will the strategic objective be attained?

6.2.3.4 Defining expected outputs

The next step is to define the outputs required to attain the strategic objectives. These are the products or services required to achieve a strategic objective, which result from a series of activities. The distinction between strategic objectives and outputs is that strategic objectives are broader and may have several constituent outputs that are more specific.

6.2.3.5 Determining activities

Activities or strategies are specific, actionable items to be implemented in order to achieve a particular output. Details of activities related to implementation can be presented in an operational plan. Activities are commonly written using action verbs in the present tense. The following are important considerations for determining the activities to include (61).

- Which levels, organizations and groups are targeted?
- What resources may be available?
- Which populations, geographical areas and facility levels are targeted?
- Will the activity achieve the desired output?
- Who can most benefit and contribute?

6.2.3.6 Defining indicators

To measure progress towards achieving the goals set forth in the NSOAP, it is crucial to define indicators. If possible, all indicators should have a baseline value and an end-line target to attain during the timeline of the NSOAP. Common criteria used for defining useful indicators are provided below (59).

- **Relevance:** clear relationship between the output and the indicator;
- **Accuracy:** measures what it purports to measure;
- **Importance:** captures something that makes a difference;
- **Usefulness:** the results point to areas which can be changed;
- **Feasibility:** can be obtained with reasonable and affordable effort;
- **Credibility:** recommended and is being used by leading experts and organizations such as WHO and World Bank (for example, LCoGS indicators or WDIs);
- **Validity:** to the extent possible has been field tested and used in practice; and
- **Distinctiveness:** lacks redundancy and does not measure something already captured under another indicator.

A more in-depth discussion of indicators is provided in Chapter 7 of this manual.

6.2.4 Writing recommendations

This section describes a set of guiding principles that can assist in writing the NSOAP recommendations. The first is to write simply. To ensure that the NSOAP can be read and understood by a variety of stakeholders, especially implementers and end-users, the NSOAP should be written in plain language that avoids the use of jargon that is difficult for non-experts to understand. All stakeholders should be able to read and understand the contents of the plan without needing to consult experts. The second principle is to be clear and concise in writing the NSOAP, avoiding long and drawn-out discussions. The third is to be objective. The NSOAP writing committee should be well-informed, objective and responsible for translating stakeholder priorities into the final document by devising objectives and strategies that are based on facts and evidence. The fourth is to present information in the most suitable way. For example, NSOAP goals, strategic objectives, outputs, activities, indicators, baselines and targets could be presented in one table, because they are all related to each other (see Table 6.1).

Table 6.1 Example of an NSOAP goal to increase surgical volume nationally

GOAL 1: INCREASE SURGICAL VOLUME NATIONALLY			
Strategic objective	**Output**	**Activities**	**Indicators**
SO1. Increase the number of SOA providers from 0.02 to 2.0 per 100 000 population by 2025.	O1. Train specialist SOA providers	• A1. Train 500 specialist general surgeons by 2025 • A2. Train 500 specialist anaesthesiologists by 2025 • A3. Train 500 specialist obstetricians by 2025	Number of specialist SOA providers per 100 000 population
	O2. Train non-physician anaesthesia providers	A1. Train 1000 non-physician anaesthesia providers by 2025	Number of anaesthesia providers per 100 000 population

SOA: surgical, obstetric and anaesthesia

6.3 ARRIVING AT BROAD CONSENSUS ON THE FINAL NSOAP

When the first draft of the NSOAP has been written, it can be shared with the wider stakeholder community to generate consensus on the final plan. Generating consensus ensures that the plan's strategic objectives, goals, outputs, activities and targets are all aligned with stakeholders' views and available evidence. The consensus process can be carried out in various ways including through an in-person workshop, by email or by post.

Using a workshop allows for the assembling of a comprehensive group of stakeholders to comment on each section of the plan in turn, with the aim of eliciting feedback and attaining consensus on all components of the draft. The in-person approach can facilitate a deeper engagement from the stakeholders, but it can be costly and time consuming to convene the participants in person. Alternatively, the draft can be circulated to participants for feedback electronically or by post. These methods have the advantage of being quick, cheap and useful for reaching a greater number of stakeholders. However, the disadvantage is that the depth of discussions and feedback may be limited. A combination of these methods may be ideal; for example, an initial smaller workshop could be followed by wider consultation conducted remotely. Once consensus is reached and the final NSOAP draft is complete, the next steps are creating a framework for M&E (see Chapter 7) and costing and budgeting the plan (see Chapter 8) before the plan is sent to Ministerial leadership for approval.

6.4 SUPPLEMENTAL RESOURCES

Strategic Planning: Transforming priorities into plans is available from:
https://tinyurl.com/y76vtg9u (61).

National Surgical, Obstetric and Anaesthesia Strategic Plan Year 2017-2021 is available from:
https://tinyurl.com/ybeb7yqq (Zambia) (69).

Saving Lives Through Safe Surgery (SaLTS) 2016-2020 is available from:
https://tinyurl.com/y9jafp99 (Ethiopia) (70).

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CHAPTER **7**

Monitoring and evaluation

An essential part of any NSOAP is a well-defined monitoring and evaluation (M&E) strategy to assess the results of the plan and track the progress towards achieving its goals. The Surgical Assessment Tool (SAT), the Anaesthesia Facility Assessment Tool and other snapshot facility assessments are often used to assess, a surgical system at baseline and to track long-term changes over time. In contrast, an M&E strategy can be used to set specific indicators for ongoing prospective monitoring of each health facility's surgical capacity and quality. Such indicators are collected by health facility staff and then integrated into the overall national Health Information System (HIS) or Health Management Information System (HMIS). This chapter explores the importance of M&E of NSOAPs, offers examples of proposed indicators, describes mechanisms for collecting and reporting data and explains how the information.

7.1 GOALS OF MONITORING AND EVALUATION (M&E)

M&E provides the framework for change in the health system. A clear picture of a health program, in this case the surgical care system, can be captured through data collection and analysis. The picture illustrates the needs or current deficits in order to drive change. By collecting, compiling, and analysing relevant data or indicators, the current state of the health system is revealed, and areas in need of improvement can be acted upon. Indicators, or the data points chosen for measurement, should be directly tied to the goals of the health care program in order to facilitate improvements. With a clear M&E framework and mechanisms for information feedback, changes can be made in a timely manner. The proper collection, aggregation, and reporting of these indicators are essential for this process.

The data collected and reported through an M&E strategy can be used to directly measure progress towards implementing the NSOAP. The goals of M&E for NSOAPs are similar to those for M&E of national health plans (71):

- Tracking progress through the NSOAP process.
- Prioritizing SOA in the health system and increasing awareness of the importance of surgery.
- Aligning with regional and global SOA priorities (for example, by collecting and reporting common international surgical indicators).
- Identifying and addressing inequities in SOA health care delivery.
- Creating a surveillance mechanism.
- Instilling accountability for the policy and implementation.
- Using data to drive evidence-based health policy decisions.

7.2 FRAMEWORKS FOR SURGICAL INDICATORS

Several different frameworks have been proposed for surgical indicators. In 2015, LCoGS proposed six major indicators spanning three groups: preparedness for surgery and anaesthesia care (see Table 7.1), delivery of surgical and anaesthesia care (see Table 7.2), and the effect of surgery and anaesthesia care (see Table 7.3) (1). These six indicators provide the most information when used and interpreted together; no single indicator provides an adequate representation of surgical and anaesthesia care when analysed independently.

In 2016, four of these six indicators were incorporated into the WDIs from the World Bank (72). WHO includes the six surgical indicators in the Global Reference List of 100 Core Health Indicators, which also contains perioperative mortality rate and service-specific availability and readiness both for basic and comprehensive surgical services (73). Additional WHO surgical indicators, beyond the 100 core indicators, include postoperative sepsis and wait time for elective surgery (73). These indicators can serve as examples for countries seeking to integrate surgical data into their national HIS.

Table 7.1 LCoGS indicator group 1: preparedness for surgery and anaesthesia care

	INDICATOR GROUP 1: PREPAREDNESS FOR SURGERY AND ANAESTHESIA CARE[1]	
	Access to timely essential surgery	**Specialist surgical workforce density**
Definition	Proportion of the population that can access, within two hours, a facility that can perform caesarean delivery, laparotomy, and treatment of open fracture (the Bellwether procedures)	Number of specialist SOA physicians who are working per 100 000 population
Rationale	All people should have timely access to emergency surgical services; Bellwether procedure performance predicts accomplishment of many other essential surgical procedures; two hours is a threshold of death from complications of childbirth	The availability and accessibility of human resources for health is a crucial component of surgical and anaesthesia care delivery
Data sources	Facility records and population demographics	Facility records, data from training, and licensing bodies
Responsible entity	MoH	MoH
Comments	Informs policy and planning about location of services in relation to population density, transportation systems, and facility service delivery	Informs workforce, training, and retention strategies
Target	A minimum of 80% coverage of essential surgical and anaesthesia services per country by 2030	100% of countries with at least 20 surgical, obstetric, anaesthesia providers per 100 000 population by 2030

LCoGS: Lancet Commission on Global Surgery; MoH: Ministry of Health; SOA: surgical, obstetric and anaesthesia.
[1] Access and workforce density indicators would be reported annually.
Source: adapted from Meara et al. (1).

Table 7.2 LCoGS indicator group 2: delivery of surgical and anaesthesia care

	INDICATOR GROUP 2: DELIVERY OF SURGICAL AND ANAESTHESIA CARE[2]	
	Surgical volume	**Perioperative mortality**
Definition	Procedures done in an operating theatre per 100 000 population per year	All-cause death rate before discharge in patients who have had a procedure in an operating theatre, divided by the total number of procedures, presented as a percentage
Rationale	The number of surgical procedures performed per year is an indicator of met need	Surgical and anaesthesia safety is an integral component of care delivery; perioperative mortality encompasses death in the operating theatre and in the hospital after the procedure
Data sources	Facility records	Facility records and death registries
Responsible entity	Facility and MoH	Facility and MoH
Comments	Informs policy and planning about met and unmet needs for surgical care	Informs policy and planning about surgical and anaesthesia safety and surgical volume when number of procedures is the denominator
Target	80% of countries by 2020 and 100% of countries by 2030 tracking surgical volume; 5000 procedures per 100 000 population by 2030	80% of countries by 2020 and 100% of countries by 2030 tracking perioperative mortality; in 2020, assess global data and set national targets for 2030

LCoGS: Lancet Commission on Global Surgery; MoH: Ministry of Health.
[2] Surgical volume and perioperative mortality indicators would be reported annually.
Source: adapted from Meara et al. (1).

Table 7.3 LCoGS indicator group 3: financial effect of surgical and anaesthesia care

	INDICATOR GROUP 3: FINANCIAL EFFECT OF SURGICAL AND ANAESTHESIA CARE[3]	
	Protection against impoverishing expenditure[4]	**Protection against catastrophic expenditure[5]**
Definition	Proportion of households protected against impoverishment from direct out-of-pocket payments for surgical and anaesthesia care	Fraction of households protected against catastrophic expenditure from direct out-of-pocket payments for surgical and anaesthesia care
Rationale	Billions of people each year are at risk of financial ruin because they have accessed surgical services; this is a surgery-specific version of a World Bank UHC target	Billions of people each year are at risk of financial ruin, because they have accessed surgical services; this is a surgery-specific version of a World Bank UHC target
Data sources	Patient surveys, facility records, and population demographics	Patient surveys, facility records, and population demographics
Responsible entity	Patient surveys may be completed by the facility or externally by independent agencies, MoH responsible for final indicator	Patient surveys may be completed by the facility or externally by independent agencies, MoH responsible for final indicator
Comments	Informs policy about payment systems, insurance coverage and balance of public and private services	Informs policy about payment systems, insurance coverage and balance of public and private services
Target	100% protection against impoverishment from out-of-pocket payments for surgical and anaesthesia care by 2030	100% protection against catastrophic from out-of-pocket payments for surgical and anaesthesia care by 2030

LCoGS: Lancet Commission on Global Surgery; MoH: ministry of health; UHC: universal health coverage.
[3] Financial protection indicators should be reported alongside the World Bank and WHO measures of financial protection for UHC.
[4] Impoverishing expenditure is defined as being pushed into poverty or further into poverty by direct out-of-pocket payments, defined by national or international poverty lines.
[5] Catastrophic expenditure is defined as direct out-of-pocket payments of greater than 10% of total household expenditure.
Source: adapted from Meara et al. (1).

7.3 SELECTION OF ADDITIONAL INDICATORS

It is advisable for each country to consider additional indicators for their NSOAP in order to more directly target country-specific goals or better address previously identified deficits in surgical care delivery. Selecting additional indicators for M&E of NSOAPs involves developing specific definitions, collection tools, analysis plans and targets. The following principles can serve as a guide for the selection of additional indicators:

- Indicators with relevance at the facility level as well as the regional, national and global levels.
- Indicators that are feasible to collect within the currently available data collection system.
- Indicators that are amenable to adaptation at the facility, regional and national levels.
- Indicators with clear targets that can be set and measured.
- Indicators with effective reporting mechanisms in place.
- Indicators that are inclusive of a broad range of metrics (inputs, outputs, outcomes and impact).
- Indicators that span several specialties, such as SOA and trauma.

It is preferable and efficient to integrate any new indicators which can be easily measured within currently available mechanisms of data collection, although it may require updating current hospital registries or data reporting forms. Choosing additional indicators that can be successfully integrated is best accomplished through an inclusive consultation process with national HIS teams. In some cases, new tools will be required to accurately measure an indicator in conjunction with a relevant population-sampling methodology. Prior to roll out, adequate testing, iteration and training on how to complete the tool can help to avoid mistakes that are costly or compromise data quality. This is especially relevant for indicators requiring patients' perspectives, such as emergency surgical access and financial risk protection. It is important to carefully consider the resources needed to collect potential indicators that are outside of the standard health facility data system.

Staff in settings without an existing culture of data collection may need education on the importance of data collection, coupled with hard-skills training on how to collect data accurately. A culture of collecting, reporting, ad efficiently using data can be fostered by demonstrating the potential power of data to drive change and monitor improvement. It is important to communicate and adhere to the principle that data reporting is never used to blame, only for objective reflection and quality improvement.

7.4 DATA FLOW PLAN FOR INDICATORS

Creating a specific data flow plan for each indicator improves accountability and consistency. It is recommended to assign a specific staff member of the health facility to accurately collect data, with clear direction on where to record each element. As an example, the responsibility of collecting data on surgical volume may be assigned as follows:

- The surgeon or workforce equivalent leading the surgical case will be responsible for recording each case in the operating room logbook.
- The operating room head nurse will count the number of cases in the logbook at the end of each month and record this on the data reporting form.
- The data quality focal person will aggregate all data reporting forms for an overall hospital report.
- The report is then escalated through district, regional and then national designees.
- The data are then aggregated nationally and reported back in a usable way back through the regional, district and facility levels to be effectively used to facilitate positive change.

7.5 SETTING MEASURABLE TARGETS FOR INDICATORS

Specific, measurable targets should be set for each indicator. When developing targets, there are three general approaches (71):

- Absolute targets are numbers or values (for example, surgical volume).
- Relative targets describe a relative change when the baseline is unclear (for example, decreasing perioperative mortality rate by 50%).
- Annual rate of change describes an annual change when the baseline is known (for example, increasing emergency surgical access by 5% per year).

Creating measurable goals for each indicator can motivate progress at both the facility and the national levels towards the objectives set out in the NSOAP. Definitions, collection tools and operational plans for all six Lancet indicators, as well as additional SOA indicators that are commonly used, are available online (74).

7.6 USING THE DATA

Finally, the foundational purpose of the M&E process is how the data are used. Reporting the data effectively at the national level to assess progress of NSOAP interventions is a key factor in improving surgical capacity at all levels. It is equally important that facilities are empowered to use the data for their own quality improvement. To that end, it is useful to create a process for regular review, problem solving and action around indicator collection. At the facility level, the monthly surgical team meeting (described in Chapter 9) is ideal for this purpose. These M&E metrics provide opportunities for local surgical teams to evaluate their performance, to design more efficient hospital systems, and to focus on the quality of their work. At the national level, key data provided to NSOAP governance committees can guide decision-making, promote accountability and help create environments where facilities can thrive. Indicators and their targets can provide valuable insight about gaps in the current surgical system and about opportunities for policy and interventions. Regular evaluation of these metrics can determine how successful interventions are at reaching these national aims. A case study of NSOAP M&E in Ethiopia is provided in Box 7.1.

BOX 7.1

M&E: CASE STUDY FROM ETHIOPIA

M&E is one of the eight major pillars of excellence in the foundation of Ethiopia's national surgical plan: Saving Lives Through Safe Surgery (SaLTS). SaLTS, a national five-year flagship program, is part of the broader Health Sector Transformation Plan. Accordingly, the M&E strategy associated with SaLTS has been integrated into the national Hospital Performance Monitoring and Improvement (HPMI) framework. The SaLTS project team, in conjunction with Harvard Medical School's Program in Global Surgery and Social Change, met regularly over six months to develop a strategy to (a) evaluate Ethiopia's national surgical system every 1–2 years with a cross-sectional tool and to (b) monitor ongoing surgical services at the facility level for continuous performance feedback on a quick loop. The products of these collaborative sessions include a Hospital Assessment Tool (HAT), adapted for the Ethiopian context from the WHO-Harvard survey tool, and the establishment of 15 key performance indicators (KPIs) for regular monitoring of surgical services (see Annex 1). The HAT has been administered at 29 facilities spanning three regions in Ethiopia and is set to be expanded nationally and repeated on a cycle of 2 to 5 years. The KPIs encompass measures of surgical capacity, safety, and quality (see Annex 1). To capture data elements for each indicator, patient survey tools were created and perioperative, anaesthetic, and hospital admission and discharge registries were updated. Of the 15 surgical KPIs, nine will be rolled out nationwide in the newly revised HPMI strategy and available open access on Ethiopia's District Health Information System dashboard (see Fig. 7.1). Indicators were chosen based on their relevance and ability to affect change at the facility level. An example of the flow of data from the facility through to the federal MoH is shown in Fig. 7.2. National training on both the HAT and the new KPIs has now been completed. Through the support of General Electric Foundation's Safe Surgery 2020 initiative, the next step for the KPIs is to promote local capacity-building on indicator collection at the facility level, through provision of and training on the revised registries and data collection tools. In conjunction with the federal MoH and the regional health bureaus (RHB), Harvard's Program in Global Surgery and Social Change will start facility-based training around the SaLTS KPIs to assess the best practices for quality data collection and provide a road map on next steps for scale up.

Fig. 7.1 Surgical key performance indicators (KPIs) in Ethiopia

1	**Surgical volume**
2	**Peri-operative mortality rate**
3	**Rate of safe surgery checklist utilization**
4	**Surgical site infection (SSI) rate**
5	**Anaesthetic adverse outcome**
6	**Delay for elective surgical admission**
7	**Mean duration of in-hospital pre-elective operative stay**
8	**Blood unavailability ratio**
9	**Patient satisfaction**
10	**Surgical bed occupancy rate**
11	**Surgical, obstetric, and anaesthesia provider density**
12	**Rate of first elective case on-time theatre performance**
13	**Rate of cancellation of elective surgery**
14	**Emergency (2h) surgical access**
15	**Protection against catastrophic expenditure**
16	**Births by surgical, instrumental or assisted vaginal delivery**
17	**Major surgeries per surgeon**

Indicators 1–9 (bolded) have been incorporated into the national HIS. Indicators 10–15 are included in the SaLTS monitoring and evaluation strategy but have not been integrated at the national level. For full indicator definitions and collection tools, see Annex 1.
Source: Ethiopia's Federal Ministry of Health.

Fig. 7.2 Data flow for KPIs in Ethiopia

FMOH: Federal Ministry of Health; HPMI: Hospital Performance Monitoring and Improvement; KPI: Key Performance Indicators; RHB: Regional Health Bureau.
Source: adapted from Ethiopia's SaLTS Monitoring and Evaluation Plan (70)

7.7 SUPPLEMENTAL RESOURCES

KPIs FROM ETHIOPIA'S NSOAP

Indicator (category)	Definition	Data source	Reporting frequency (type or unit)
Surgical volume (access)	Total number of major surgical procedures performed in an operating theatre per 100 000 population per year. Note: a major surgical procedure is defined as any procedure conducted in an OR under general, spinal or major regional anaesthesia. **Formula:** [(total number of major surgical procedures performed in OR per reporting period) ÷ (total regional catchment population)] * 100 000	OR registry; regional health bureau records	Monthly (proportion)
Perioperative mortality rate (quality)	All-cause death rate prior to discharge among patients who underwent a major surgical procedure in an operating theatre during the reporting period. Note: Stratified by emergent and elective major procedures. **Formula:** [(total number of deaths prior to discharge among major surgical cases) ÷ (total number of major surgical cases)] * 100	OR registry; inpatient admission and discharge registers	Monthly (percentage)
Rate of safe surgery checklist utilization (safety)	Proportion of surgical procedures where the safe surgery checklist was fully implemented. **Formula:** [(number of surgical patient charts in which the safe surgery checklist was completed entirely) ÷ (total number of patient charts reviewed)] * 100	Patient charts (random review of at least 25 surgical patient charts for completed checklists)	Monthly (percentage)
Surgical site infection rate (safety)	Proportion of all major surgeries with an infection occurring at the site of the surgical wound prior to discharge. **One or more of the following criteria should be met:** · purulent drainage from the incision wound; · positive culture from a wound swab or aseptically aspirated fluid or tissue; or · spontaneous wound dehiscence or deliberate wound revision or opening by the surgeon in the presence of pyrexia >38 °C or localized pain or tenderness. **Any two of the following:** · wound pain, tenderness, localized swelling, redness or heat; or · an abscess or other evidence of infection involving the deep incision that is found by direct examination during re-operation, or by histopathological or radiological examination. **Note:** A major surgical procedure is defined as any procedure conducted in an OR under general, spinal or major regional anaesthesia. **Suggested operational definition:** To diagnose an incisional surgical site infection (superficial or deep) a patient must have at least one of the following: · purulent drainage from the incision · abscess within the wound (detected clinically or radiologically). Or one of the following combinations: · pain or tenderness or localized swelling or redness or heat or fever and · the incision is opened or deliberately or spontaneously opens (dehisces). **Formula:** [(total number of inpatients with new surgical site infection arising during the reporting period) ÷ (total number of major surgical procedures performed in OR in reporting period)] * 100	Surgical site infection surveillance logbook; OR registry	Monthly (percentage)

Anaesthetic adverse outcome (safety)	**Percentage of surgical patients who developed any one of the following:** · cardiorespiratory arrest · inability to secure airway · high spinal anaesthesia. **Cardiorespiratory arrest is defined as cessation of cardiac activity evidenced by:** · chest compressions being performed · loss of femoral, carotid and apical pulse with ECG changes. **High spinal is defined as within 15 minutes of administration of spinal anaesthesia:** · patient experiences loss of sensation in the shoulder and · need for positive pressure ventilation after administration of spinal anaesthesia · Includes any administration of spinal anaesthesia extending above T4 level. **Inability to secure airway defined as:** · having to awaken patient due to inability to intubate · cardiac-respiratory arrest due to failure to intubate. **Formula:** [(number of surgical cases with an anaesthetic adverse outcome in the reporting period) ÷ (number of major surgical procedures performed in OR in reporting period)] * 100	Anaesthesia registry	Monthly (percentage)
Delay for elective surgical admission (quality)	The average number of days that patients who underwent major elective surgery during the reporting period waited for admission (that is the average number of days between the date each patient was added to the waiting list until date of admission for surgery) **Formula:** [total sum of (date patient was admitted - date patient was added to surgical waiting list)] ÷ total number of patients admitted for elective surgery during the reporting period	Liaison registration book; inpatient admission and discharge registers	Monthly (days)
Mean duration of in-hospital pre-elective operative stay (quality)	The average number of days patients waited in-hospital (after admission) to receive elective surgery during the reporting period. **Formula:** [total sum of (date patient received elective surgery - date of admission)] ÷ (total number of elective surgical procedures during the reporting period)	Inpatient admission and discharge registers	Monthly (number)
Blood availability ratio for surgical patients (quality)	The percentage of major surgical and obstetric cases which are referred or cancelled because of unavailability of blood. **Formula:** [(total number of major surgical procedures cancelled due to lack of blood) + (total number of patients referred because of lack of blood for transfusion)] / (total number of major surgical procedures performed in the reporting period) * 100	OR registry; OR scheduling register; referral registry	Monthly (percentage)
Surgical patient satisfaction (quality)	Average rating of a hospital on a score of 0–10 from surgical I-PAHC surveys. **Formula:** (sum total of I-PAHC rating scores) ÷ (number of I-PAHC surveys completed)	I-PAHC Patient Satisfaction Surveys	Quarterly (number)
Surgical bed occupancy rate (access)	The average percentage of occupied surgical beds during the reporting period. **Formula:** [(sum total surgical patient length of stay days during the reporting period) ÷ (average number of surgical beds * number of days in reporting period)] * 100	Inpatient admission and discharge registers; ward nurse	Monthly (percentage)

SOA provider density (quality)	Number of surgical, anaesthetic and obstetric physicians, integrated emergency surgical officers and anaesthetic providers, including BSc. anaesthetists, nurse anaesthetists and 'others' (nurses, MS anaesthetists and health officers), who are working per 100 000 population. **Formula:** [(number of surgical, anaesthetic or obstetric physicians, integrated emergency surgical officers or anaesthetic providers including BSc anaesthetists, MS anaesthetists, nurse anaesthetists, other nurses and health officers working) ÷ (total population of catchment area)] * 100 000	Hospital human resources records	Annually (proportion)
Rate of first elective case on-time theatre performance (quality)	The percentage of first elective cases that began on or prior to the scheduled time (per agreed hospital protocol) during the reporting period. **Formula:** [(total number of first elective cases commenced on time) ÷ (total number of first elective cases performed in reporting period)] * 100	OR scheduling register	Monthly (percentage)
Rate of cancellation of elective surgery (access)	Percentage of elective surgeries that were cancelled on the planned day of surgery. **Formula:** [(number of elective surgeries cancelled) ÷ (total number of elective surgeries scheduled)] * 100	OR scheduling register	Monthly (percentage)
Emergency two-hour surgical access (access)	The proportion of patients requiring emergency surgical care whose travel time from when they first seek care to their arrival at a facility providing any of the selected Bellwether procedures (caesarean sections, laparotomies or open fracture stabilization) is less than or equal to two hours. **Formula:** (number of emergency surgical patients whose travel time from when they first seek care to their arrival at a facility providing caesarean sections, laparotomies or open fracture stabilization is less than or equal to two hours) ÷ (total number of emergency surgical patients surveyed)	Patient survey; OR registry	Every six months (proportion)
Protection against catastrophic expenditure (finance)	Proportion of households protected against catastrophic expenditure from direct out-of-pocket payments for surgical and anaesthesia care. **Formula:** (number of patients whose aggregate cost for accessing and receiving care is less than 40% of reported household income) ÷ (total number of surgical patients surveyed)	Protection Against Catastrophic Expenditure Survey; OR registry	Every six months (proportion)

OR: operating room; SOA: surgical, obstetric and anaesthesia.
Source: Ethiopia's Federal Ministry of Health.

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CHAPTER **8**

Costing and budgeting

Assigning costs to implementation items in an NSOAP is a pivotal stage in the planning process. It is the inflection point at which the plan may either be transformed into a feasible, fundable policy document or shelved due to overly optimistic or unrealistic targets. Costing is a multistep process that requires input from a broad range of government and health-sector stakeholders. It is typically performed after the creation of an implementation framework. Careful consideration of the costing methodologies of programmes and services – from conception to completion of the NSOAP cycle – can help to ensure that the finalized plan is realistic within the budgetary constraints of the government and funding partners. As one of the final steps in the creation of the NSOAP, costing ultimately allows a plan to be co-developed and submitted to the government's MoF as an advocacy tool for resource mobilisation. At this stage, the costed plan can be considered for funding, and options can be explored for allocating domestic funds and for leveraging external funding platforms such as bilateral and multilateral organizations, NGOs and civil society organizations. Moreover, the costing and budgeting process creates an avenue for further prioritizing activities based on the availability of resources. The process also allows the NSOAP committee to coalesce around the activities that are immediately achievable and cost-effective, while deferring activities that are less so. See Chapter 5 for more specific guidance on priority-setting.

This chapter provides an instructive overview of the steps involved in costing an NSOAP:

- Selection of the costing methodology
- Assembling available costing information
- Defining the cost objects and the quantities required
- Determining the cost base
- Attributing costs to the cost objects
- Validating and confirming the results of the costing exercise
- Creating a summary and sharing the results

8.1 STEPS INVOLVED IN COSTING THE PLAN

The procedure for costing an NSOAP can be flexible, but it is usually defined by representatives of the departments of policy, planning and budgeting within the country's MoH and MoF to ensure that the product is aligned with official costing and budgeting procedures. If there is no designated costing protocol, there are resources available that the costing committee can use as a guide (75). Most of the following steps can be performed in a workshop setting by a small group of experts (or taskforce) in each of the national surgical planning domains: infrastructure, workforce, service delivery, financing, information management and information technology. Prior to building consensus on a unified costing document, the experts can collaborate to define cost objects for each activity and then determine the cost base for the relevant domain's implementation. Cost objects include activities, programmes, services and any other items that have an associated cost; the cost base is the associated local unit cost for each cost object.

8.1.1 Assemble available costing information

Before embarking upon costing an NSOAP, it is efficient to gather as much of the relevant data as possible ahead of time from multiple stakeholders and select a costing methodology to be deployed in the costing exercise. A summary of items that may need to be costed is included in Table 8.1, but the table is not exhaustive. Representatives from the MoH and MoF can assist in developing a comprehensive list by ensuring that the list of cost bases and objects is as complete as possible before costing commences and by assigning individuals to gather specific cost base data for the costing exercise. As described in the next section, the quantity of each cost object required is usually determined during the costing exercise through discourse and debate.

Table 8.1 Sample Cost Items

Category	Sample of items to be costed
Basic demographic information	· Number of health facilities at each level · Per diem scale of all government employees · Transport reimbursement · Telecoms reimbursement · Standard cost per person for catering and facilities · Printing cost per page for a standard 20-page booklet
Workforce (training costs and wage costs per year)	· General and specialist surgeons · Obstetricians · Anaesthesiologists · Intensivists · Radiologists · Pathologists · Physiotherapists · Nurse anaesthetists · Critical care and theatre nurses · Midwives · Biomedical equipment technicians · Laboratory technologists · Surgical administrators or data clerks · Prehospital personnel · Emergency physicians
Infrastructure	· Facility building costs for each hospital level · Overhead costs for new facilities · Surgical equipment · Sterilization system purchasing and upgrades · Medical imaging and diagnostic equipment · Operating theatre equipment · Ambulance costs · Pathology and laboratory equipment · Physiotherapy equipment · Emergency departments
Recurring consumable costs (equipment and medicines)	· Essential surgical and anaesthetic medications · Delivery ward equipment and supplies · Surgical ward equipment and supplies · Ambulance maintenance and fuel costs · Recurrent equipment maintenance costs · Laboratory supplies · Medical implants and devices
Service delivery	· Continuing medical education and professional development and implementation costs, if applicable · Quality improvement initiatives and training workshops
Financing	· Indirect costs including accounting and administration · Government-sponsored workshops
Information technology	· Internet and information technology costs · Costs of training new data clerks and technologists · Electronic medical records · Hospital connectivity implementation costs, if applicable · Electronic medical records and Internet training for clinicians · Costs of creating and improving surgical research programmes

Source: Zambia MoH NSOAP (2017–2021) (69).

8.1.2 Define the cost objects and the quantities required

The next step is to define the cost objects and quantities required. Each of the activities in the implementation framework should be broken down into its constituent cost objects. These should include:

- Capital expenses
- Maintenance
- Installation costs for large equipment
- Shipping
- Operating costs for the duration of the plan (for example, fuel and reagents)
- Wages
- Training costs
- Indirect costs such as planning workshops, administrative support, and programme M&E

A useful rule of thumb can be to include a scaling percentage of the capital cost of large equipment for maintenance, training repairs, installation and shipping.

The quantity of each implementation item required should then be defined in this step – for example, the number of anaesthesiologists to be trained, the number of facilities to which Internet access should be provided or the number of new district hospitals to be built. This is often determined by group consensus.

8.1.3 Determine the cost base

Determining the cost base is the next step. Each of the cost objects has a per-unit cost which is multiplied to determine the final cost of the line item. Ideally, the cost base for each cost object would be determined from historical costing data from the country itself. Depending upon how recently costs have been updated, they may need to be adjusted for inflation. If historical data are not available, cost bases may be gathered from similar programmes or from acquiring data from local or neighbouring countries or from regional or international sources. If a cost base cannot be found for a cost object, experts may be called upon to make estimations as a last resort. Much of the information gathering for this step is best done in advance for efficiency and to allow more workshop time for consolidation and building consensus. For example, the government official overseeing biomedical equipment technicians may bring documentation on the cost of their training as well as the capital, operating and maintenance costs of anaesthesia machines. A sample list of information items to prepare ahead of workshops can be found in Table 8.1.

If the cost bases for some cost objects remain undefined by the end of a costing workshop, it is helpful to specifically assign people to research additional historical, neighbouring country or expert-derived cost bases. A list of sources for each cost base should be documented as clearly as possible, so they can be referenced for accountability and validation. For some items, it may not be possible to assign an exact cost due to significant national variation between facilities – for example, the cost to upgrade all facilities to minimum national standards. Such items may require assumptions, such as the proportion of functional equipment by which the total cost of equipment for an operating theatre can be scaled. These assumptions can be further informed by the findings of the baseline assessment.

8.1.4 Attribute costs to the cost objects

The quantified cost objects can be multiplied by their cost base using a prepared costing tool or spreadsheet. The costs within each implementation activity can then be summed to create a final cost. This cost aims to reflect a best estimate of the true total cost of a full implementation of the desired activity within the duration of the NSOAP. Many activities have similar cost objects and by attributing the cost bases to those activities first, quick early progress can be made that leaves more time for discussion about more complex items. At this point it may be useful to list a potential source of funds, such as central MoH, devolved district funds, facility funds, nongovernmental sources, bilateral and multilateral organisations.

8.1.5 Validate and confirm the results of the costing exercise

Once a consensus is reached across all the stakeholders, the costing draft can be submitted to the relevant government party (for example, the MoF) for official validation and approval before final dissemination as an advocacy tool for resource mobilisation. Throughout the planning process, the NSOAP should be situated within the broader context of existing government policies and plans.

This can serve as a final checkpoint to ensure that NSOAP activities do not overlap with existing activities. At this stage, costs may need to be adjusted for projected annual inflation and projected exchange rate fluctuations and also discounted in line with ministry and government protocols. Finally, it is important to distinguish between the existing funding commitments for the current state of surgical services and the incremental costs needed to implement the expanded and upgraded services outlined in the NSOAP.

8.1.6 Create a summary and share the results

Both a summarized, palatable version and the full-detail costing document can be shared with the appropriate government parties and all government-approved potential funding partners. At this stage, it may be useful to divide costs into recurrent and capital expenditures. To build a strong case for funding, it can be useful to include references to previous cost–effectiveness studies relevant to the plan's line items.

8.2 PARTICIPANTS IN THE COSTING PROCESS

To develop a comprehensive and accurate costing document, it is important to involve representatives from each discipline and stakeholder group that will be affected by the NSOAP. This section describes a partial list of important stakeholders, but the invited participants will vary in different countries.

The first group of important stakeholders are government officials, healthcare practitioners, including NSOAP sponsors, policymakers, budget experts, technicians and costing experts. To ensure that the costing exercise is valid and appropriate, costing is usually led by a government official or consultant who is intimately familiar with the MoH's customary costing process. Representatives from the MoF or budgetary division of the MoH typically open the costing exercise by encouraging group members to aim for targets that are feasible within current funding limitations of government and nongovernmental sources.

Depending on local circumstances, the costing exercise may also involve clinicians, health-system administrators, professional organization representatives, actors from NGOs and civil society organizations, private-sector representatives and outside consultants. These groups can often provide additional costing information based on their programming experience that is not otherwise available within the MoH. It is also important to ensure that purchasers open a call for tender to ensure a competitive spirit between the product/service providers and institutions.

8.3 TOOLS AVAILABLE TO GUIDE THE COSTING PROCESS

Available costing tools range from spreadsheet templates to in-depth modelling and simulation tools such as WHO's One Health Tool software (76). A guide and review of 13 WHO costing tools (77) is available through the Partnership for Maternal, Neonatal and Child Health. A simple free template (53) is also available online from Harvard Medical School's Program in Global Surgery and Social Change. However, NSOAP costing committees should use costing tools available through their governments' budgeting and costing departments wherever possible.

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CHAPTER **9**

Organizational structures and governance

The concept of governance broadly relates to the rules, laws, organizational structures, and mechanisms that help an organization achieve the objectives set out in its strategic plans (78). Health governance involves mechanisms to promote health on the national agenda and balance policy priorities within the health agenda. It also includes the terms of engagement and legal regulation of health stakeholders as well as the establishment of transparent accountability mechanisms.

The majority of this complex legal framework is defined at the national or sectoral level (79). Therefore, the key to the successful governance of an NSOAP is to understand this framework and align NSOAP governance mechanisms to the existing strategies. Focusing on additional responsibilities created by the NSOAP, rather than redefining the entire national framework, allows for more efficient drafting and implementation of NSOAP governance. In addition to a governance strategy that encompasses the entire NSOAP more broadly, each of the domains typically requires governance specific to its implementation and evaluation.

One of the most important functions of the NSOAP is to strengthen the visibility and accountability around access to and quality of SOA service delivery. Setting up a strong governance system for the NSOAP process facilitates the following advantages:

- Improved visibility for SOA care for promotion on national health agendas
- Better coordination of the SOA care agenda with complementary programmes within the health sector and across other sectors, including health financing
- Setting up cyclical communication and accountability mechanisms from the national level to facility levels and back to the national level, to ensure widespread implementation of the plan

The organizational structure, implementation, management, and accountability mechanisms will vary from country to country, depending on existing structures and policies. However, this chapter aims to provide broad suggestions about the roles and responsibilities of NSOAP actors in order to establish a clear chain of accountability and escalation from the facility level to the national level. Sections of the chapter focus on NSOAP governance at the national, regional, district, and facility levels, as well as suggestions for training around leadership and governance.

9.1 NATIONAL-LEVEL ORGANIZATION AND GOVERNANCE

Although it is intuitively understood that the NSOAP process should be part of a country's MoH priorities, it is worth emphasizing the importance of a country's MoH in being identified as the primary "owner" and leader of the NSOAP governance structure.

An early step that can help to define roles is to determine which department within the country's MoH will be responsible for the NSOAP. Given the cross-cutting nature of the NSOAP, some countries may opt to include the plan under the RMNCH department, due to the close alignment with the CEmONC agenda. Others may see the plan as fitting better within the NCD department, due to its inclusion of cancer and trauma. Still others may consider health services or quality departments most appropriate. Any of these options are viable, but the NSOAP agenda may be broad enough to merit the creation of a new department dedicated to promoting SOA care.

Given the breadth of activities required for an NSOAP to be successful at the national level, it is important to have enough dedicated staff to advance the mission. In many cases, full-time, dedicated staff members may be needed to successfully implement the NSOAP, which requires managing and liaising with the implementing ministry and external personnel. Adding these broad responsibilities to the workload of existing staff, who may already be working at capacity, is likely to impede the plan's implementation. If circumstances permit, creating the position of a dedicated NSOAP coordinator or director to serve as the central focal point for the NSOAP is highly recommended. This individual can be responsible for devising strategies, developing guidelines, convening stakeholders, coordinating and leading efforts, representing the SOA agenda at higher levels, and mobilizing resources.

It can also be advantageous to create a working group to assist and advise in prioritizing NSOAP implementation and monitoring its progress. This technical working group (TWG) could include representatives from each of the major stakeholder groups to ensure coordination of programming, such as:

- Professional associations (obstetrics and gynaecology, surgery, anaesthesia and nursing) to contribute technical expertise
- Licensing and credentialing bodies
- Development partners
- Nongovernmental organizations
- Patient advocacy groups and lay-person representatives
- Representatives from the other complementary MoH departments
- Representatives from other working groups, such as, RMNCH and/or NCDs
- Human resources and training
- Biomedical and pharmaceutical directorates

The potential roles of the working group are outlined in Table 9.1, which also describes the wider role of civil society organizations and industry in the implementation of NSOAP. For each of the stakeholder groups to be effective, they require access to accurate data from the M&E plan (see Chapter 7) to inform decision-making and review progress. Accountability mechanisms should be put in place to evaluate the plan's progress against set targets; ideally, these mechanisms would align with existing mechanisms already in place for other national-level plans, which are often under the purview of quality assurance departments. Structures should strive to achieve gender parity.

9.2 REGIONAL- AND DISTRICT-LEVEL ORGANIZATION AND GOVERNANCE

To advance the NSOAP portfolio of activities, it can be helpful to appoint a named regional or district NSOAP coordinator, representative, working group or focal unit at each level of regional and district health management. The designated entity can act as a bridge between national-level NSOAP governance and the regional- or district-level facilities. This creates the capacity to disseminate, interpret, and operationalize the NSOAP at the appropriate levels. It also facilitates the feedback of information from regional levels as to what their actual needs are. The actual structure of this level of governance varies based on the degree of centralization or decentralization adopted by the government. Additional responsibilities for this level of governance are suggested in Table 9.1.

9.3 FACILITY-LEVEL ORGANIZATION AND GOVERNANCE

Improved leadership and coordination at the facility level is a cornerstone to improving quality of SOA care and implementing the NSOAP. A key strategy for improvement is to ask each facility that provides SOA care to form a multidisciplinary surgical team (MST), including SOA providers, nurses, midwives, pharmacists and non-clinical staff (those responsible for sterilization and cleaning, for example). The team, led by the NSOAP champion, would report to the facility in-charge, director or CEO. NSOAP planners should consider stipulating that all facilities should appoint a named operating theatre manager, whose responsibilities would include managerial support and monitoring of the MST. More detailed responsibilities for each group are suggested in Table 9.1. It may benefit each facility to devise a facility-specific compliance strategy, devised by the surgical team and the hospital management, to ascertain how best to implement the recommendations of the NSOAP and how to mobilize resources to achieve their goals. In many cases, facilities will already have an identified SOA leader that has already been working hard to improve surgical care.

At the facility level, establishing formal mechanisms for discussing SOA issues at regular meetings is strongly advised. Such meetings provide opportunities to review facility NSOAP M&E data collected at the facility (such as morbidity and mortality rates), to raise any other challenges and opportunities (such as equipment or human resources issues), and to form actionable plans for quality improvement around SOA. In smaller facilities, the SOA review meetings can be included as a part of wider management meetings in the interest of efficiency. As detailed in Chapter 7, these review meetings can also be used to discuss formal progress reports sent to the regional and district levels for further review. In setting up these processes, it is important to maintain accountability and responsibility, while simultaneously promoting systems improvement and offering a safe environment to voice concerns.

Table 9.1 NSOAP governance at multiple levels

Level of governance and actor	Responsibilities may include
National-level governance and MoH	
Reporting directorate[1]	· Drivers, instigators and owners of the NSOAP · Assume responsibility for the overall NSOAP plan · Conveners of outside stakeholders
National SOA coordinator or director	· Develop strategy, guidelines and manuals · Coordinate and lead all NSOAP activities · Escalate NSOAP priorities to higher levels of government · Represent SOA on interdepartmental and intersectoral committees · Mobilize resources for the service
SOA technical working group	· Participate in strategy, guidelines and manual development · Supervise, monitor and evaluate NSOAP activities · Prioritize NSOAP activities within allocated budget · Represent the view of multiple stakeholders, including front-line clinicians and patients
Quality directorate	· Integrate NSOAP targets and reporting into national quality assurance mechanisms · Supervise and evaluate NSOAP implementation · Report results of NSOAP supervision to TWG and others
Regional and district-level governance	
Regional and district health bureau SOA representatives	· Coordinate and lead all NSOAP activities at regional level · Coordinate and lead the regional TWGs · Collate data from facilities through district then regional levels · Liaise between the facilities and the MoH · Visit facilities to supervise NSOAP implementation · Coordinate capacity-building activities · Collate and disseminate best practice information · Sensitize front-line staff around the NSOAP content and implications for each facility · Arrange training around SOA for facility staff · Arrange community sensitization around SOA
Facility-level governance	
Facility CEO or medical director	· Oversee NSOAP activities · Set up ongoing data collection activities at the facility · Identify NSOAP champion · Assign operating room manager · Allocate and mobilize resources for NSOAP agenda · Ensure inclusion of NSOAP in facility health plan
NSOAP champion	· Lead, mobilize and motivate the facility SOA team (clinical and non-clinical) · Ensure that the surgical team works together and feels valued · Lead development an NSOAP specific action plan for the facility for review by the hospital leadership · Coordinate collection of surgical monitoring data · Arrange internal surgical team conferences to discuss mortality and morbidity, review surgical data monthly and discuss opportunities for quality improvement
NSOAP surgical team	· Contribute towards facility specific NSOAP plan · Participate during the monthly feedback meeting · Collect relevant data for monitoring and evaluation
Operating room manager	· Act as secretary for the NSOAP surgical team · Oversee day-to-day activity of operating rooms · Identify any issues to escalate to the NSOAP facility team · Represent surgery to hospital senior management of the hospital (with NSOAP champion)
Civil society organizations	
Professional societies	· Provide evidence-based guidelines for surgical and anaesthesia services · Advocate around the NSOAP to their members · Provide quality assurance around education and continuing professional education · Develop curricula for training programmes · Participate in supportive supervision programme development and support
Development partners and NGOs	· Ensure that projects are aligned with priorities of NSOAP · Coordinate and communicate plans with the NSOAP coordinator, director and regional or district teams to ensure coordination between programmes and avoid duplication · Ensure practices comply with effective development cooperation practices[2]
Industry	· Create shared value in SOA care through sustainable, responsible and affordable products and product systems

NCD: noncommunicable disease; NSOAP: National Surgical, Obstetric and Anaesthesia Planning manual; RMNCH: reproductive, maternal, newborn and child health; SOA: surgical, obstetric and anaesthesia; TWG: technical working group.
[1] Appropriate directorate may include (depending on the context for each individual country): specific SOA directorate, NCDs, RMNCH or quality, curative or preventive services.
[2] Concept defined by UHC2030 (80).
Source: Burssa et al. (81).

9.4 TRAINING AROUND LEADERSHIP AND GOVERNANCE

Given the additional responsibilities generated by NSOAP governance structures, formal leadership and management training can be very valuable. On the global level, substantial efforts are moving towards formalizing health care management training through qualifications such as diplomas and master's degrees and these activities are presently featured in many NHSPs. In the context of NSOAPs, training around operating room leadership and teamwork has shown promise in improving quality and safety (82). Formal training for operating room managers, such as a diploma or degree, is already widespread in high-income countries and the development of such courses, adapted to specific low-resource settings, have proven beneficial (83,84). Expansion of formal leadership and management for SOA staff should be considered as one of the NSOAP activities. See Box 9.1 for an overview of Ethiopia's commitment to strong governance of its NSOAP.

BOX 9.1

ETHIOPIA'S COMMITMENT TO STRONG GOVERNANCE

Ethiopia, one of the first countries to develop an NSOAP (the SaLTS initiative), has committed to a strong governance framework by making excellence in leadership, management, and governance the first of the eight pillars of their plan. The other seven pillars of the plan are: infrastructure; supplies and logistics; human resources; advocacy and partnership; innovation; quality of SOA care and service delivery; and M&E.

The NSOAP framework establishes clear accountability, with named personnel at each level of the hierarchy assigned responsibility for SaLTS implementation (see Fig. 9.2). The NSOAP is part of the medical service's general directorate and quality directorate. An executive committee supervises the SaLTS TWG, a diverse group of more than 19 stakeholders that includes representatives from the Surgical Society of Ethiopia, the Ethiopian Society of Gynaecologists and Obstetricians, the Ethiopian Society of Anaesthesiologists, the Ethiopian Association of Anaesthetists, African Medical and Research Foundation, Safe Surgery 2020, WHO and the Clinton Health Access Initiative.[1] The diversity of stakeholder representation aims to ensure that SaLTS strategies reflect the needs at front-line facilities; it also cements close partnerships to ensure increased support for implementation outside of Ethiopia's MoH. The project management team within the TWG acts as the engine for SaLTS implementation. At the regional level, each RHB should have regional surgical advisory councils and each facility should have a multidisciplinary SaLTS programme coordinating team, which is championed by a SaLTS focal person and reports to a facility director committed to the advancement of the SaLTS agenda. M&E of the SaLTS programme has been integrated into the national quality framework, with systematic reporting due to begin in 2018.

Recognizing the need for formal capacity-building to maintain the governance around SaLTS, Ethiopia's MoH has developed training materials and implemented a nationwide leadership training for the facility-based SaLTS program's coordinating teams. The training, initially piloted in two regions by Jhpiego, begins with one-week intensive training, followed by nine months of supportive supervision and mentorship aimed at improving teamwork and problem-solving skills among the surgical team.[2] The training has been scaled to 700 surgical team members and has deployed clinical mentors to 38 hospital sites to date. In addition to short course trainings in leadership, Ethiopia's MoH has recognized the need for more formal training and has proposed developing a master's level operating theatre manager degree, which aims to graduate 150 theatre managers by the end of the plan in 2020. This is currently under discussion with the relevant stakeholders. This new degree will complement the more general master's degree in hospital and health care administration that was pioneered in Ethiopia, in collaboration with the Yale School of Public Health (83).

[1] Additional SaLTS stakeholders include: Safe Surgery 2020 (including GE Foundation, Dalberg, Assist International, Jhpiego, G4 Alliance, and the Harvard University Program in Global Surgery and Social Change); academic institutions (including Stanford University, Addis Ababa University, Addis Ababa Tegbare-ID Polytechnic College, Bahir Dar University, and Mekelle University); partners (Sterile Processing Education Charitable Trust, Amref Health Africa, Engineering World Health, and ALERT); and professional and governmental organizations (including the College of Surgeons of East, Central, and Southern Africa, the Pan African Association of Surgeons, the United States President's Emergency Plan for AIDS Relief, and the World Federation of Anaesthesiologists).
[2] More information about the Safe Surgery 2020 initiative is available from http://www.safesurgery2020.org/how/ (accessed 19 April 2019).

Fig. 9.2 Ethiopia's SaLTS initiative leadership structure

FMOH: federal ministry of health; SaLTS: Saving Lives Through Safe Surgery.
Source: adapted from Burssa et al. (81).

9.5 CONCLUSION

Building a strong governance structure for the NSOAP process will provide strong leadership, adequate oversight and program credibility. The MoH, as the leaders of the NSOAP governance structure will ensure engagement of stakeholders at each level and increase likelihood of implementation success. Broad inclusion of SOA experts, champions and stakeholders in the NSOAP governance structure, each with clearly defined roles, responsibilities, targets, and reporting structures helps ensure that at the end the NSOAP planning process there are clear next steps for implementation to ensure all stakeholders are coordinated in achieving a common goal.

YOUR

Notes

CHAPTER **10**

Financing

10.1 INTRODUCTION

How to finance an NSOAP is the central focus of this chapter. A country can have both strong political support and institutional capability to implement an NSOAP, but if lacking in resources to finance the NSOAP policy, surgical care will not be prioritized. A systematic and coherent NSOAP financing strategy is required at the beginning of the NSOAP process to avoid funding challenges during policy implementation.

We will draw on both empirical experiences of countries that have formulated and begun implementing NSOAPs and on key concepts and knowledge in health systems financing to provide a general, though practical strategy to NSOAP financing. Part one situates NSOAP financing within the broader political process of national health system budgeting. Part two introduces the concept of fiscal space to provide a systematic approach to mobilizing health system resources for NSOAPs. Finally, part three discusses the stakeholders relevant to NSOAP financing and a stakeholder engagement plan.

10.2 INCORPORATING THE NSOAP WITHIN HEALTH SYSTEM FINANCING

The key challenge that confronts all governments when considering a new health care policy is the question of whether the investment can be justified, given other competing health care and national development priorities of the state. In order to get an NSOAP funded and implemented, an understanding of the following is required: 1) the national budgeting process; 2) constructing a persuasive investment case and; 3) mobilizing political support.

10.2.1 Aligning the NSOAP with the national budgeting process

National budgeting is a political and deliberative process that determines government expenditure for the next financial year. Each country has a unique Public Financial Management (PFM) system, and it is essential to be aware of these specificities, together with the internal political factors that influence the budgeting process. In general, the process is led by the Office of the President, Ministry of Finance (MoF), and relevant planning ministries.

After consultation with sector ministries, for example, the Ministry of Health (MoH), the budget is approved by a political body, usually the parliament, after closer examination through more specialized parliamentary committees. Key functions central to the PFM and the budgeting process are to ensure fiscal health, promote efficient spending, and manage national debt. Understanding the principles and cycles of the central budgeting system, along with the political dynamics affecting budgeting decisions, is needed to influence the final budget allocation at critical points in the budget process. The budget process and its overall direction is influenced by the broader developmental vision and "national interests" of the state, which is ideologically constituted. National strategic plans on economic development, social redress, or poverty reduction, for example, are often articulated fiscally within medium-term expenditure frameworks (MTEF) (85). In this way, the MTEF sets a limit on the space for negotiation for new policies such as the NSOAP. Early and close collaboration between the MoH and MoF is therefore, critical to enable both institutions to understand differing perspectives and to reach consensus around the need to finance an NSOAP. The NSOAP funding plan should be aligned within this overall process of government budgeting.

10.2.2 Making a strong investment case to inform budget allocation and decisions

To justify first, the inclusion of an NSOAP into the national health strategic plan (NHSP) and, second, to expand spending on the surgical components in the NHSP, there must be sufficient evidence to both 1) mobilize political support for the NSOAP within the MoH and; 2) persuade the MoF that an NSOAP is a cost-effective (with GDP growth potential) inclusion within the national budget during budget consultation.

Making this argument should be carefully analyzed and articulated. Though this is the focus of chapter two in this manual, the investment case should broadly reflect the health system context, health needs, and overall developmental agenda of the state, within the global political commitments already made. Typical arguments for surgical care have included those that increase health system performance, improve welfare, and promote macro-economic development (1,3,42). Given the current emphasis on primary health care (86), universal health coverage, and maternal and child health (87,88), it may be prudent to examine how quality surgical care can improve each of these as means to strengthen health systems and be more responsive to the health care needs of the citizenry as well as towards achieving the targets of the SDGs.

10.2.3 Mobilizing and sustaining political support for NSOAP financing

Getting an NSOAP onto the political agenda involves multiple actors in the political system but ultimately depends on both the effective persuasion of senior members within the Ministry of Health and later, the Ministry of Finance. Resource mobilization, thus, cannot be isolated from the political factors necessary to secure proper financial support. A thorough analysis of the political terrain is required in order to build political support. This includes understanding health policy and planning decisions in the context of the fundamental values that underpin political decisions happening at the central level and which are likely to influence political support for the NSOAP. One strategy to mobilize political support is the inclusion of an NSOAP in the health sector strategic plan, and MTEF, to emphasize it as a priority among other health sector plans. The integration allows the government to align the NSOAP policy across all other strategic health priorities, which can help to minimize inefficient spending. This step secures both political and economic support for the plan and promotes sustainable public funding by ensuring that NSOAPs are considered in yearly government budgets.

Mobilizing and sustaining political support also means understanding the interests of the citizenry and attitudes of civil society to galvanize popular support. The question of how best to frame the NSOAP, given key political actors in the system, and to identify "windows of opportunity" to influence political behaviour in support for the NSOAP is a critical element of a political strategy. According to Kingdon's policy stream model, governments take policies seriously during "windows of opportunity" when three "streams" come together: the problem stream (objective situation), policy stream (availability of a policy solution) and political stream (political will and popular support) (89). Highly dependent on country context, these opportunities often emerge during times of change (new government, economic crisis, sustained economic growth) or when there is a local or global "champion" that drives a groundswell of political support. A coherent political strategy is needed to assess these factors in relation to political, economic, and sociocultural specificities in order to make the NSOAP (and the financial plan) politically feasible.

10.3 RESOURCE MOBILIZATION FOR NSOAP POLICY FINANCING

10.3.1 The concept of fiscal space

Fiscal space has been formally defined as: "the capacity to increase public spending but doing so in a fiscally sustainable manner that does not threaten government solvency" (90). By increasing the fiscal space for health care spending, the government can provide a way to finance an NSOAP. In the 2000s, the approach was adapted to the health care sector to guide government health care spending (91). Five components or pillars are commonly used to assess sources of fiscal space (table 1). In this manual, a sixth pillar is included in the framework to incorporate innovative financing sources, which are increasingly gaining traction (92). A fiscal space analysis for health can be conducted to evaluate the likelihood of generating funding for the NSOAP based on this framework.

Table 10.1: Fiscal space approach to health system financing: "pillars" to consider when evaluating NSOAP resource mobilization, indicators examples, and actions for each pillar

	Fiscal space pillar	Sample Indicators	Action taken to assess fiscal space
1	**Macroeconomic conditions**	· Projected GDP growth rates · Tax reforms · Elasticity of health expenditure to GDP	· Evaluate how macroeconomic and political conditions are likely to influence fiscal space for health
2	**Reprioritization of government budget**	· Health budget as % of government budget · Health budget per capita	· Assess discrepancies in political commitments to health and current budgetary allocations · Assess budgetary allocation to health in proportion to health needs · Compare budgetary allocation to health in relation to countries with similar economic levels
3	**Increase health sector-specific resources**	· Current tax rates on alcohol, tobacco and other "sin taxes" · Mandatory health insurance coverage	· Evaluate additional political context around "sin taxes" · Evaluate potential for introduction of mandatory health insurance
4	**Efficiency of existing resources**	· Effective coverage of key interventions · Degree of corruption · Rate of health workers absenteeism · Variation in per capita funding across geographic areas	· Assess sources of both technical and allocative inefficiency as a means to improve service delivery · Evaluate financial and non-financial incentives of providers to improve performance
5	**External sources**	· Development Assistance for Health (DAH) as % of Total Health Expenditure (THE) and Government Health Expenditure (GHE) · Trends in aid flow and future commitments · % of external funding earmarked for disease specific programs · % of health aid as direct budget support	· Assess compatibility of aid flow with country needs/priorities
6	**Innovative Financing sources**	· % Innovative financing of THE and GHE · Number of innovative financing mechanisms for surgery developed at global, national and sub-national levels · Amount of funding. mobilized through innovative financing for surgery at global and national levels	· Which innovative financing sources exist or could be adapted to create fiscal space given the political conditions in the country · What factors could positively or negatively affect the adoption of these funding mechanisms

Adapted from Tandon A., and Cashin C., Assessing public expenditure on health from a fiscal space perspective (93).

10.3.1.1 Macroeconomic conditions

It is important to consider how macro-fiscal conditions, such as economic growth, revenue generation, and government debt, will affect the fiscal space for NSOAPs. Macroeconomic plans that promote and sustain economic growth and that improve tax administration will likely lead to an increase in total fiscal space amendable for healthcare expenditure. The sustained economic growth in many countries has allowed them to invest in new health care programs, while economies that have contracted are often forced to decrease health care spending (94–96).

10.3.1.2 Aligning priorities of government budget

An increase in the proportion of the national budget allocated for health care spending can unlock funding for the NSOAP. One major factor indicative of the prioritization level of health is the share of public resources allocated to health. The 2001 Abuja declaration by the African Union countries set a target of at least 15% of the national budget to be used towards health (97), yet few countries have maintained this commitment. Several countries are steadily increasing government health expenditure. Uganda, for example, increased its health budget as a share of government budget from 7% 1997-98 to 10% in 2002-03, following through on its commitment to increase health shares in the government budget

(93). A persuasive case can be made for increasing the total health budget to accommodate NSOAP financing if: 1) the proportion of government spending on surgical services is lower than comparable countries and; 2) the ministry of health can demonstrate the cost-effective investment nature of surgical spending over the long-term.

10.3.1.3 Increase health sector-specific resources

Tax reforms to both direct and indirect taxes and introducing new health sector-specific resources such as earmarked taxation or mandatory health insurance can serve as another source of fiscal space for NSOAPs. Earmarked taxes, for example, can be used to direct tax revenue towards specific and related health programs. Zimbabwe's AIDS Trust Fund received funds from a 3% tax levied on formal sector employers and employees (98). Taxing tobacco and sugar have also been introduced to generate revenue for the health sector (99,100). In South Africa, for example, a health promotion levy mobilizes funds from a sugar tax to expand fiscal space for health care services that target non-communicable diseases (101). A fiscal space analysis should consider how health sector-specific resources may be introduced to fund NSOAP implementation while taking into account the political conditions of introducing such measures. Taxing petrol, for example, could contribute towards a road accident fund that helps to finance emergency surgical care at the district level of the health system.

10.3.1.4 Efficiency of existing resources

"Efficiency of government health expenditures" can be defined as the degree of maximum levels of health systems outputs to (financial) resource inputs (93). Assessing technical and allocative inefficiencies of available resources can be used to determine fiscal space for NSOAPs within health budgets. Common ways in which efficiency could be improved include improved geographic spending across regions, changing the allocation of resources across clinical service delivery categories within the health sector, targeting cost-effective programs, and aligning health expenditure with identified needs and strategic plans. In Indonesia and India, for example, a study found absentee rates among primary health care facility workers to be as high as 40% (102). Addressing both healthcare worker and facility manager absenteeism within this context could improve healthcare service delivery and free up fiscal space for other competing health priorities. Considering the examples set within the global sexual and reproductive health community, for instance, a review of reproductive health policies in eight countries across five continents and sub-continents illustrates ways in which efficient integrated reallocation of existing health funding may be carried out to strengthen service delivery (103). During the Millennium Development Goal (MDG) era, Namibia undertook a critical analysis of existing health funding to address climbing maternal mortality (104).

10.3.1.5 External sources: the global level

LMICs must often look beyond the domestic resources to finance health care programs. However, since the 2008 economic recession, growth in international aid has gradually decreased (105)(106). Countries looking to increase fiscal space using international sources may need to adapt the NSOAP to the requirements of these funding agencies to make a stronger case for support. For example, since a significant area of international funding is targeted towards maternal and child health (MCH) and sexual and reproductive health and rights (SRHR), countries can emphasize those specific aspects of the NSOAP that improve MCH and SRHR surgical service outcomes. If global sources are determined to be a major source of funding for the NSOAP, it is critical that these funders are engaged early in the process and that the funding stakeholder management strategy (Chapter 5) incorporates these actors. Rwanda's Human Resources for Health program is an example of a program that used external funding effectively to achieve national strategic health goals. Over seven years, $150 million were deployed to the Rwandan Government in a system-wide, skills-transfer program that was responsible for training physicians, nurses, and other health care workers (107).

10.3.1.6 Innovative financing

Innovative financing can help to increase fiscal space and to reduce the need to borrow capital from external sources. Innovative financing is a general term used to describe several "non-traditional" forms of financing for the health system. When discussing innovative financing, we distinguish between innovative financing instruments used to mobilise funds and innovative financing mechanisms that are used to pool and channel funds for health programs. Examples of innovative financing mechanisms that have reached a global scale include the Global Fund, GAVI, and UNITAID to finance HIV, TB and malaria, vaccinations and expanded access to new diagnostics and treatments by influencing market dynamics respectively (92). The defining feature of innovative financing mechanisms is that innovation occurs at each stage of the health care value chain framework (108). Though not yet harnessed for surgical care, innovative financing mechanisms are an untapped resource for financing NSOAPs that have been successfully scaled in global health to help bridge funding gaps (109). There is an opportunity for countries and inter-governmental regional blocs to think creatively and develop innovative financial mechanisms to expand fiscal space. These mechanisms can also be aligned with other underfunded health system priorities. Countries can base their approaches on those innovative mechanisms that have been scaled successfully. The Global Financing Facility (Box 10.1) is an example of an innovative financing mechanism that can be leveraged for NSOAP financing.

BOX 10.1

INNOVATIVE FINANCING – GLOBAL FINANCING FACILITY

The Global Financing Facility (GFF) was established in 2015 to "accelerate efforts to end preventable maternal, new born, child and adolescent deaths and improve their health and quality of life." The Secretariat is housed within the World Bank, and along with the GFF Trust Fund, it aims to catalyse the financing for country-driven investment cases that address maternal and child health. The GFF mechanism employs the following innovations:

- Resource mobilization from multiple sources: GFF trust fund, domestic IBRD (International Bank for Reconstruction and Development)/IDA (International Development Association) financing, aligned external financing, and private sector resources.
- GFF trust fund finance is used primarily to provide initial seed funding, provide technical assistance and preparatory work, and importantly, to help coordinate a multisectoral partner approach.
- Each dollar from the trust fund is multiplied many times over through: 1) attracting additional funding and; 2) identifying and allocating funds to high-impact solutions via the GFF channelling mechanism.
- Finally, a broad range of stakeholders preside over both the GFF trust fund and the country GFF-funded projects, helping to promote performance-based funding approach.

Although surgery, obstetrics, and anaesthesia (SOA) are not explicitly included in the GFF programmatic objectives, SOA have a crucial role in preventing deaths and improving quality of life within the RMNCH (reproductive, maternal, neonatal and child health) spectrum. NSOAP teams can liaise with the GFF team in-country to create a country-driven investment case for SOA care. The NSOAP process and final plan provides all the elements needed to make a country-driven investment case to GFF: baseline assessment, interventions required, cost and a strategy to increase fiscal space for the NSOAP through domestic sources and improved spending efficiency.

10.4 FUNDER STAKEHOLDER ANALYSIS AND ENGAGEMENT STRATEGY

Two key outcomes of the funding stakeholder analysis are both to identify all the stakeholders involved in funding decision-making and to develop a stakeholder engagement strategy. While the former is merely a descriptive activity, the latter is inherently a political process. Continuous engagement with key stakeholders throughout the NSOAP process is needed to ensure that resources are allocated for NSOAP implementation during budgetary decisions and disbursements. The key stakeholders to consider when developing a resource mobilization plan are presented in Table 10.2. Further information on conducting a stakeholder analysis and engagement plan are detailed in Chapter 5 of this manual.

The MoF is the major actor when it comes to domestic resources and is also usually the primary state institution that engages with external funders. It is thus the principal actor with respect to NSOAP financing. The importance of engaging with the MoF early in the NSOAP development process cannot be overemphasized. Although the MoH is responsible for developing health policies like the NSOAP, the MoH is dependent on the MoF to secure funding for the implementation of these policies. Ministry of Health policies that are developed in isolation without MoF input may not be prioritized in budget allocations and risk being underfunded. The NSOAP committee within the MoH should work closely with the MoF during budget negotiations to ensure the NSOAP is incorporated in final budget proposals to be submitted to and approved by parliament.

Finally, the public and Civil Society Organizations (CSOs) often play a vital role in the budgetary process as they influence budget priorities from the grassroots level, advocate for transparency in budgetary processes and sometimes even participate in budget-setting processes when such decisions are decentralized to the local level. In countries where the decision space for financing is decentralized, local actors (CSO's citizens and local health boards/offices) have expanded choice and influence over local resource mobilization and health expenditure. Engaging with these local actors, including the media, could be used to both support NSOAP financing at the local level and shape the political agenda for improved surgical care at the central level. While this inevitably translates into engagement with a larger number of stakeholders, this approach inherently promotes ownership at the grassroots level, with enhanced potential for long-term sustainability.

Table 10.1: Fiscal space approach to health system financing: "pillars" to consider when evaluating NSOAP resource mobilization, indicators examples, and actions for each pillar

	Key Stakeholder	Role in Funding
1	**Ministry of Health, Department of Policy and Planning**	Authority to develop MoH policies and formulate yearly MoH budgets
2	**Ministry of Finance**	Authority to approve and disburse public funding
3	**Politicians/ Policymakers**	Influence the political agenda and priority of health needs that are ultimately funded
4	**Public, civil society organizations and media**	Influence politicians to allocate funding to health priorities
5	**Bilateral and multilateral funders, e.g. USAID, World Bank, Bill & Melinda Gates Foundation**	Provide additional funding to meet public funding gaps through loans and grants
6	**Private Sector**	Provide funding through public-private partnerships, reduce public funding needs through private health service provision

10.5 CONCLUSION

The main challenge to improving surgical care is arguably financing. This chapter highlights three critical steps in developing a strategy to mobilize resources for NSOAPs. Firstly, situating NSOAPs within broader processes of health systems financing, including the national budgeting process through the articulation of a coherent NSOAP investment case. The chapter stressed the importance of mobilizing political support for the NSOAP within these budgeting processes. Secondly, the chapter provided an approach to resource mobilization for NSOAPs through fiscal space analysis. Finally, we focused on identifying and mobilizing the support of the main funding stakeholders involved in the NSOAP process.

YOUR

Notes

CHAPTER **11**

Implementation

11.1 INTRODUCTION

Policy implementation is the act of using available resources, mechanisms and partnerships to translate policy into practice to achieve policy goals (110). As policies, National Surgical, Obstetric and Anaesthesia Plans (NSOAP) have the potential to reduce health inequalities associated with surgical disease, improve health outcomes, enhance surgical service delivery efficiency across specialties, improve overall health of the population, and promote economic growth. Countries with NSOAPs have begun implementing their NSOAPs (69,70,111–113). The success of any public policy or strategic plan such as an NSOAP depends on the degree to which the policy is effectively implemented.

In this chapter, we highlight a few considerations ensuring the successful implementation of an NSOAP along with empirical lessons from countries that have begun NSOAP implementation. Given that NSOAPs are so nascent, many of the lessons highlighted below are drawn from early experiences of implementation from countries with NSOAPs as well as policy implementation lessons from other sectors that could be applied to NSOAPs. While this chapter aims to provide recommendations for NSOAP implementation, readers should note that policy implementation is context-specific and highly influenced by complex social, political, economic, and external factors that must be taken into account during the implementation of NSOAPs. For example, political context such as the type of political system (highly

centralized vs decentralized states with popular political participation) and degree of political stability have varying effects on how policies are developed and implemented (114,115). Hence this chapter should be read in a broad, general sense rather than in a prescriptive manner and should be adapted to each country's socio-political and economic context. Most of all it is intended to serve as a pragmatic guide to tangible problems that may be reasonably expected in the process of implementing an NSOAP.

In the following sections, we discuss disseminating and operationalizing the NSOAP resources needed for implementation, establishing leadership for implementation, and conclude with considerations for creating feedback mechanisms for monitoring progress on implementation.

11.2 DISSEMINATING THE NSOAP

One of the first steps of NSOAP implementation is the dissemination of the plan to relevant stakeholders and wider audience, particularly those who will be financing and implementing the plan. In addition, patients, family, and the community could benefit from a fully and efficiently implemented plan since they are voters and could also hold the government/leadership accountable during and after implementation. The level of dissemination of a policy will influence its degree of implementation (115). Dissemination serves to inform stakeholders on the new priority framework of the Ministry of Health and can be used to engage them on their new roles and responsibilities in NSOAP implementation. Without dissemination, frontline providers who are the ultimate implementers will not be aware of the NSOAP and will therefore be less likely to support and contribute to its implementation, resulting in policy resistance. Frontline clinician support for the NSOAP is better when the policy is disseminated to stakeholders right after its completion. Ideally, many of these stakeholders would have already been aware of the NSOAP through their inclusion in the stakeholder policy team during the NSOAP formulation process as discussed in chapter five of this manual. While stakeholder engagement in the NSOAP development process is aimed at ensuring representation from all relevant stakeholder groups, it is not possible to involve every individual stakeholder, especially frontline healthcare workers, in the policy development process. After the plan is fully developed, stakeholder engagement transitions from representative to comprehensive engagement.

The NSOAP may be disseminated through different methods including the traditional and social media, national and regional workshops, and conferences depending on target audience. Dissemination of the plan to the general public can occur through print and social media or community gatherings. If there is an official launch of the NSOAP, different types of traditional and social media could be used to inform the general public of the new strategy, using locally available methods that assure reaching the largest, and remote, segments of the population. Dissemination to the general population helps ensure increased awareness on how the new policy could affect their access to surgical care and their role as patients in implementation. An informed public can hold their leaders accountable, further assuring successful policy implementation.

BOX 11.1

NSOAP DISSEMINATION IN ZAMBIA

Dissemination of the Zambian NSOAP (2017-2021) occurred at the global, regional and national levels. It was disseminated at the global level through an official launch at the 2017 World Health Assembly, at the regional level in Africa through the East Central and Southern Africa Health Community (ECSA-HC) and the Southern African Development Community (SADC) and at national level through a national surgical forum and at professional association meetings. The integration of the NSOAP strategy of implementation into the Zambian National Health Strategic Plan 2017-2021 (ZNHSP) also serves as a means of disseminating the new health policy to strategic partners and other stakeholders in health and non-health sectors. However, work remains to be done to ensure more awareness among stakeholders at sub-national level, especially the patients and the general population who are better placed to hold policy makers accountable.

For implementers of the plan, targeted disseminations may be conducted through national and regional workshops and conferences. For example, the NSOAP could be presented and discussed in countries where regular health managers planning meetings are institutionalized. Annual conferences by professional societies are also dynamic venues through which cross-cadre health professionals, the frontline NSOAP implementers, may be engaged. No matter the dissemination strategy, it is crucial that all stakeholders be included in a productive way that will allow them to better understand the goals and innate advantages of the NSOAP in order to determine how they can operationalize and execute the plan.

11.3 OPERATIONALIZING THE NSOAP

According to the World Health Organization (WHO), operational planning is the process by which strategic objectives and goals of a national health policy, strategy, or plan are transformed into actionable activities (116). Operational planning is distinguished from strategic planning in that strategic planning focuses on long-term goals and visions with long-term spans of five to ten years, while operational planning deals with the concrete day-to-day activities that are needed to achieve the long-term goals of the strategic plan. Operational plans are typically developed on a yearly basis, ideally once the overall health budget is known.

Developing a short-term operational plan for the NSOAP helps determine what needs to be done in the near term, within available resource constraints, to achieve the goals and strategic objectives of the NSOAP. Without operationalizing the NSOAP, implementing stakeholders will not be aware of their roles and responsibilities in implementation nor of the resources available or the anticipated timelines. Thus, one of the first tasks of NSOAP implementation is the creation of a yearly operational plan that illustrates how the objectives of the first year of the NSOAP will be achieved.

BOX 11.2

SUMMARY: NSOAP OPERATIONAL PLANNING

What is it? The process by which the goals of the NSOAP are transformed into short-term actionable activities

Why do one? Operationalizing is needed to concretize NSOAPs to be implementable

When should it be done? On a yearly basis, ideally once the budget ceiling for the sector is known

Who should be involved? Every stakeholder group that will be involved in implementing components of the NSOAP.

Who is involved in developing an operational plan?

As operational planning is intensely activity-focused and reliant on available resources for implementation, operational plans are often undertaken by budget centers in the MoH and other implementing institutions. Within the MoH, this could be done by the department of policy and planning that oversees the MoH's annual budget. In decentralized systems, each province, state or region may need to develop their own operational plans and set their NSOAP-aligned goals depending on resources available to the local government. Outside the MoH, budgeting and planning departments within universities and hospitals may develop NSOAP operational plans at the facility level within resources available. Ideally all individuals and institutions, including all departments within and outside the MoH with NSOAP-related responsibilities will develop an NSOAP operational plan. The operational plan should align with the budget cycles of the financing institution. For example, MoH operational planning may be aligned with the budget cycles of the MoF.

Stakeholder participation in the operational planning process is vital. While stakeholder engagement in the priority setting phase of the NSOAP process aims to set high-level objectives, operational planning solicits input

from stakeholders on concrete activities with immediate and direct impact on day-to-day activities. Without the buy-in of frontline clinicians, the operational plan risks being poorly implemented. Operationalizing the NSOAP may also ensure transparency and accountability among implementing stakeholders. Consequently, it's crucial to engage frontline healthcare workers (surgical clinicians and nurses, hospital managers, ancillary staff, non-clinical support staff, educators, etc.) in the yearly process of NSOAP operationalization. Resistance to the NSOAP from frontline clinicians can undermine implementation and prevent the achievement of NSOAP goals.

Additional detailed information on operational planning is available in the WHO manual: *Strategizing national health in the 21st century: a handbook* (61).

11.4 RESOURCES NEEDED FOR NSOAP IMPLEMENTATION

Exploring the availability of the different types of resources necessary for NSOAP implementation is done during the early stages of NSOAP development. Without financial, human, governance, and infrastructure resources, NSOAP implementation will not be realized. It is therefore essential to identify available resources and define any additional resources needed to implement the NSOAP.

The availability of **financial resources** is critical for the successful implementation of any policy. Sustainable, sufficient and earmarked funding is needed for most activities within NSOAPs. Without funding, an NSOAP will remain aspirational and without a way forward for implementation. In many low-income and middle-income countries (LMICs), NSOAP financing will likely be the main initial barrier (see Chapter 9). The inherent cross-cutting nature of NSOAPs as a comprehensive and complex health system intervention, makes analysis of surgical care funding within other, pre-existing non-NSOAP policies a challenge. A targeted review of previous annual budgetary allocations could help determine financial resources available for NSOAP implementation. In addition, in the early stages of NSOAP implementation, many MoHs will need to dedicate significant time to advocacy in order to increase available financial resources available for the NSOAP.

Apart from financial resources, **human resources** will be needed. An assessment of available and dedicated human resources within the MoH who are skilled in policy implementation is recommended. Existing MoH personnel may need to allocate time to the implementation of the new NSOAP. However, this may become a challenge as MoH personnel are often juggling multiple responsibilities and priorities that may result in the NSOAP being neglected. To overcome this challenge, the Ministry of Health of Tanzania opted to hire dedicated full-time NSOAP coordinators to oversee the implementation. Dedicated NSOAP coordinators will ensure that NSOAP implementation is not overshadowed by competing priorities of MoH personnel. Similarly, in the Zambian scenario the responsibility of implementation was placed under the oversight of a senior MoH officer, the director of clinical care, who is supported by several national coordinators in surgery, obstetrics and gynaecology, anaesthesia and nursing.

Sometimes those developing the policy will not be leading the implementation. Staff turnover within the implementation and leadership team risk stalling implementation. Innovative and region-specific strategies for retaining staff as well as training new oncoming personnel may help to prevent this. Financial and non-financial incentives may be required to reduce staff turnover rates. New staff will need to be trained, and their roles in NSOAP implementation clearly defined. A training manual and course could be useful for bringing all new members of the NSOAP implementation team up to speed on implementation.

Partnerships can also be viewed as essential resources for NSOAP implementation. For example, a significant proportion of healthcare in developing countries is provided by faith-based institutions and private facilities. Establishing partnerships with these institutions with clear roles and responsibilities could help accelerate NSOAP implementation. **Equipment, supplies and infrastructure** resources needed should also be considered in the planning phase. Strategies for mobilizing these resources will depend on the context in each country. For example, in some countries partnerships with the biomedical industry could help secure needed equipment for the provision of safe surgery through public-private partnerships. Partnership with academic institutions could also be established to support the data collection and implementation research.

NSOAPs are a relatively new policy approach to strengthening the health system's capacity to deliver multidisciplinary surgical care. It is likely that most countries, particularly LMICs, will need continued advocacy even after the NSOAP is developed and launched to mobilize the specific financial, human, leadership, equipment, and infrastructure resources needed for its implementation and to document the benefits resulting from implementation. Thus, advocacy will need to be one of the first and most important components of implementation. Chapter 10 provides some strategies for financing an NSOAP.

11.5 ESTABLISHING LEADERSHIP AND GOVERNANCE STRUCTURE FOR THE NSOAP IMPLEMENTATION

It will be beneficial to consider aspects of governance, levels of commitment and ideologies that could positively or negatively impact NSOAP implementation. Accountability and transparency is important for effective NSOAP implementation. A poor understanding of the roles and responsibilities of policy implementers can lead to inadequate implementation. Therefore, one of the first activities of NSOAP implementation should be the establishment of organizational and governance structures with clear roles and responsibilities from the national to the community level. Establishing a clear governance structure can be useful for determining which individuals, organizations or partnerships are responsible for different aspects of the NSOAP and who should be accountable for various outcomes. This governance structure will vary from country to country and should be clearly defined in the formulated NSOAP. Chapter 9 detail both organizational and governance structures that should be considered during NSOAP development and implemented thereafter. Box 11.3 outlines an example of a strategy undertaken in Tanzania to establish a governance structure at the national level.

Leadership at all levels is crucial for effective NSOAP implementation. At the national level, high level MoH officials and influential actors can champion the implementation, advocate for resources, and communicate clear rationale and mechanisms for implementation. Continued ownership and guidance is needed from leaders at the national, regional and local levels of government throughout the implementation process. Effective leadership is needed at the MoH level to guide implementation and ensure that all implementing stakeholders are appropriately engaged throughout the span of the plan. MoH leadership is also needed for mobilizing additional resources. Leaders at the regional and local levels should also have sustained commitment during the implementation of the NSOAP. Leaders within professional societies, medical colleges and academic organizations, equally have a significant role to play in advocating for implementation, advising on implementation and implementing relevant sections of the plan. At the community level, religious and other civil society leaders may be included as NSOAP champions, as well as playing a role in holding other leadership cadres accountable for equitable NSOAP implementation.

BOX 11.3

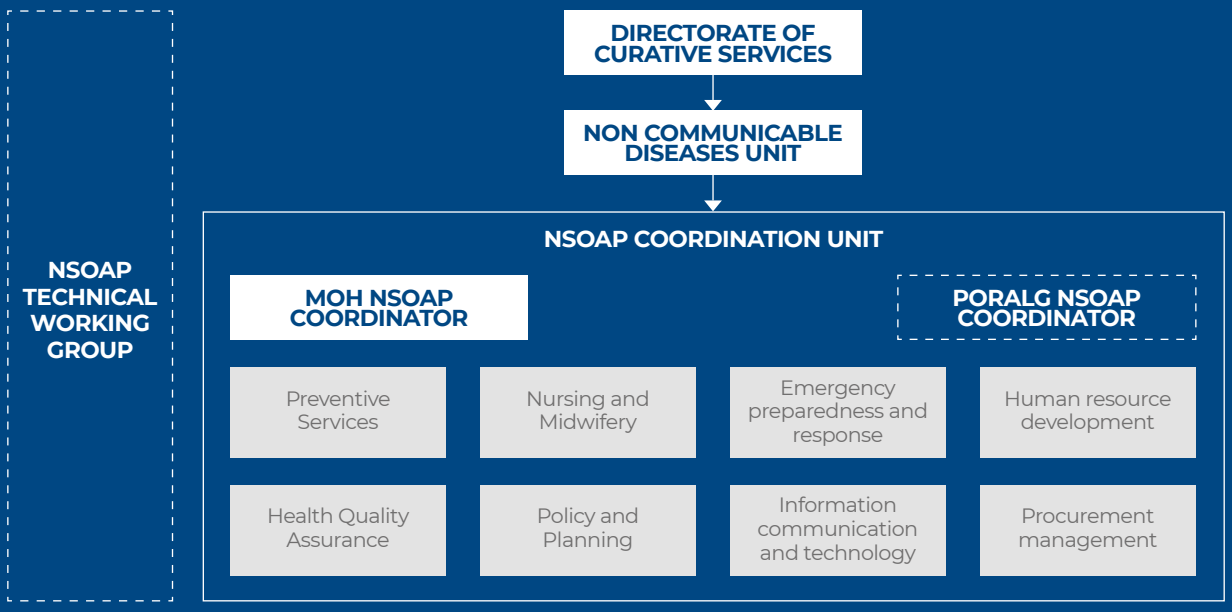
ESTABLISHING AN NSOAP GOVERNANCE UNIT: THE TANZANIA CASE

In recognition of the need for a governance unit to lead and guide the implementation of the Tanzanian NSOAP, the Ministry of Health of Tanzania took deliberate steps to establish such a unit within the MoH. The NSOAP governance unit at the MoH consists of NSOAP coordinators, a ministerial NSOAP coordinating unit, and an external technical working group.

NSOAP coordinators
The NSOAP is a comprehensive and complex policy that requires dedicated staff to coordinate activities and numerous actors that are responsible for implementing different portions of the plan. With this in mind, one of the first steps in the implementation of the Tanzanian NSOAP was the establishment of a full-time NSOAP coordinator position within the MoH to lead the implementation. An additional advantage to establishing such a position early on in the NSOAP implementation process is that they were able to advocate for additional resources for the NSOAP implementation. In Tanzania, policy implementation at the primary and secondary health levels is coordinated by the President's Office, Regional Administration, and Local Government (PORALG) which works closely with the MoH. An additional NSOAP coordinator position will be established in PORALG to coordinate the NSOAP implementation at the primary and secondary health levels with the MoH NSOAP coordinator.

Ministerial NSOAP Coordinating Unit
The NSOAP reaches accross multiple pillars of the health system and implementation requires coordination among multiple departments of the MoH. The Tanzania NSOAP is primarily housed under the directorate of curate services within the MoH. To ensure that NSOAP implementation is coordinated by all relevant departments of the MoH and activities are not operationalized in isolation of one another, an NSOAP coordinating unit comprising of various departments within the MoH will be set up. The coordinating unit will consist of at least one representative from each department of the MoH.

NSOAP Technical Working Group
In addition to the Ministerial NSOAP coordinating unit, a separate NSOAP technical working group containing representatives from stakeholder groups from outside the MoH was created. The objective of the technical working group is to advise the MoH on the implementation of the NSOAP. It consists of representatives from professional societies, nongovernmental organizations, researchers, and universities.



11.6 INITIATION OF NSOAP IMPLEMENTATION – PILOT

Initiating the implementation of an NSOAP from scratch in LMICs is unwise and unrealistic given limited resources. The NSOAP implementation should be supportive and complementary to other pre-existing health programs as it is to pre-existing health policies. Thus, there is need to identify **entry points** for the initiation of the NSOAP implementation within the health system's existing health programs. In the case of Zambia, the entry point for initiating the NSOAP implementation was through addressing hemorrhage as a cause of maternal mortality via improved obstetric surgical healthcare. Hemorrhage is the leading cause of Maternal Mortality in Zambia and many other LMICs and can be adequately managed with surgical healthcare. Maternal Mortality has been declared a public health emergency by the Zambian Head of State (2019). Thus, provision of improved and safe obstetric surgery for safe motherhood was used as the first entry point, then the call to all stakeholders to respond to the declared maternal mortality health emergency with innovative and unorthodox measures (in this case, implementation of the NSOAP) was the second entry point for initiating NSOAP implementation in Zambia.

Once the entry point(s) have been identified, there is then need to initiate NSOAP implementation with a **pilot program** of the innovative policy in one district or province/state. This is to generate evidence, demonstrate of impact (on health systems strengthening and improvement of health outcomes), and to gain knowledge that will be critical for nation-wide scaling of the said NSOAP implementation and to share best practices between countries.

11.7 FEEDBACK ON IMPLEMENTATION PROGRESS AND RESULTS

Throughout the implementation of the NSOAP, progress in achieving the NSOAP goals should be tracked through monitoring and evaluation, as detailed in Chapter 7. Frequent and routine feedback from frontline implementers is needed to adjust goals, amend strategies, and identify additional necessary resources. Establishing the proper mechanisms to monitor progress is a top priority of any policy implementation. For example, the Federal Ministry of Health of Ethiopia developed a comprehensive monitoring and evaluation tool using 15 Key Performance Indicators (KPI) and a comprehensive surgical capacity assessment tool to monitor facility-level implementation of their country's NSOAP. They developed long-term KPIs to inform decision making at the national level and short-term KPIs to inform facility-level decision making, along with clear reporting mechanisms.

Research is needed to better understand contributing factors that affect the NSOAP implementation process and impact of the implementation. Such research on the NSOAP development and implementation process will shed light on facilitators and barriers to achieving the goals of the NSOAP and determine factors that contribute to successful implementation.

11.8 CONCLUSION

The NSOAP implementation process must be adaptable. Policy implementation is not often a linear process. Long-Term objectives may change over time, often for reasons beyond the control of policy implementers. While this chapter provides some general considerations for NSOAP implementation, careful consideration of local contextual factors that could positively or adversely affect the effective implementation of this NSOAP is necessary from the beginning of and throughout the implementation process.

YOUR Notes

YOUR

Notes

CHAPTER **12**

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